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# *TESIS DOCTORAL*

# *Essays on Monetary Integration and the Political Economy of International Trade, 1860-1913*


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**DOCTORADO EN HISTORIA ECONOMICA**

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# ESSAYS ON MONETARY INTEGRATION AND THE POLITICAL ECONOMY OF INTERNATIONAL TRADE, 1860-1913

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# INTRODUCTION

In recent times, the benefits of globalization have increasingly been called into question. In particular, the support for the economic globalization, i.e. the experimented surge of market integration (including monetary integration) and trade, has been waning.

However, for long time, trade has been regarded as one of the dynamic forces of economic growth. Trade would not only provide growth opportunities directly, but also indirectly, through the channels of innovation and productivity. Even if most of the empirical studies on these issues backed this positive view, recent works found evidence for a series of backlashes related to trade, pointing at the increasing competition deriving from trade as the driver of increases in unemployment (Autor et al., 2013), lower wages (Ashournia et al., 2014), the developments in within-countries inequality (Goldberg and Pavcnick, 2016; Goldberg and Pavcnik, 2007; Milanovic and Squire, 2007) or as the responsible for extremist political and electoral patterns (see Colantone and Stanig, forthcoming (a); Colantone and Stanig, forthcoming (b); Che et al., 2016; Autor et al., 2016). In addition, Rodrik (2017) highlights the "poor management" of globalization as the possible main transmission channel.

To understand how international agreements – being these free trade agreements, currency unions or treaties of other characteristics – shape the course of trade, how trade per se evolves and expands over time, and how these agreements are formed, accepted or rejected are therefore fundamental questions to be asked.

Consequently, in this thesis, Chapter 1 deals with currency unions and their potential heterogeneous effects on trade, using the Latin Monetary Union (LMU) as a case study. The Latin Monetary Union (LMU) agreement signed in December 1865 by France, Italy, Belgium and Switzerland standardised gold and silver coinage in member countries and allowed free circulation of national coins in the Union. In his seminal study, Flandreau found no evidence of an overall positive effect of the LMU on trade. In this chapter, I estimate the effects of this currency agreement on trade. In my gravity model I explicitly take into account the changing conditions in the international environment that affected the LMU underlying economic foundations (i.e., the limits on silver coinage agreed upon in 1874) and its rules (i.e., the "liquidation clause" of 1885). I also test the existence of heterogeneous effects on bilateral trade within the LMU. In line with Flandreau, I find no significant "overall" LMU trade effects. However, I find support for the hypothesis that the LMU had significant trade effects for the period 1865–1874. These effects were nonetheless concentrated in trade flows between France and the rest of LMU members, following a hub-and-spokes structure. Moreover, I find evidence for the existence

of a 1874 “LMU-wide” structural break, which affected the course of trade flows within the Union.

Chapter 2 focuses on the margins of trade, market entry and sector spillovers, using Italy (1862-1913) during the first wave of globalization as a case study. Indeed, between its Unification and WWI, Italy faced a period of increasing participation in the international economy. The growth of Italian exports was gradual, and alternately promoted by its intensive and extensive margins. In this chapter, using a disaggregated database at country-product level, I first construct the intensive and extensive margins of trade (for Italian imports and exports) and, second, within a quasi-gravity model framework, I estimate the drivers of market entry for Italian exports, with particular attention to the presence of eventual sector spillover effects. I find that the presence of “similar” exported products increased the probability of entry in the destination market (export spillovers), even if with diminishing marginal effects, potentially linked to a “saturation”/“congestion” of the market. Equally, I find that the higher the imports’ growth rate for a specific product, the more likely it was to be internationalised by Italian exporters (import spillovers).

Finally, Chapter 3 concentrates on the vote determinants of trade agreements, using the rejection of the 1905 Spanish-Italian trade treaty as a case study. On 17 December 1905 the Italian Parliament rejected to ratify the Spanish-Italian trade agreement signed by the Italian government one month earlier, on a diatribe related to the lowering of wine import tariffs. This decision left the two countries without a bilateral treaty for an entire decade. In the literature, broader political issues and local interests are alternatively indicated as the main drivers of treaty rejection. Based on a manually assembled database which collect economic and political variables, including MPs personal features, and using a probit model, the chapter provides a quantitative analysis of the vote. Results show that it is not possible to discard that local interest, proxied by wine production, had a role in the rejection of the bilateral trade agreement.

# CHAPTER 1

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# Currency Unions and Heterogeneous Trade Effects: The Case of the Latin Monetary Union

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Jacopo Timini*

**Abstract**

The Latin Monetary Union (LMU) agreement signed in December 1865 by France, Italy, Belgium and Switzerland standardised gold and silver coinage in member countries and allowed free circulation of national coins in the Union. In his seminal study, Flandreau found no evidence of an overall positive effect of the LMU on trade. In this article, I estimate the effects of this currency agreement on trade. In my gravity model I explicitly take into account the changing conditions in the international environment that affected the LMU underlying economic foundations (i.e., the limits on silver coinage agreed upon in 1874) and its rules (i.e., the "liquidation clause" of 1885). I also test the existence of heterogeneous effects on bilateral trade within the LMU. In line with Flandreau, I find no significant LMU trade effects. However, I find support for the hypothesis that the LMU had significant trade effects for the period 1865–1874. These effects were nonetheless concentrated in trade flows between France and the rest of LMU members, following a hub-and-spokes structure. Moreover, I find evidence for the existence of a 1874 "LMU-wide" structural break, which affected the course of trade flows within the Union.

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## 1.1 Introduction

Did the Latin Monetary Union (LMU) generate significant effects on trade? And, were these effects, if any, homogenously or heterogeneously distributed across members?

Despite the LMU lasted more than 6 decades (1865-1927), between the 19th and the 20th century, only few contemporary economic historians put this international agreement at the centre of their research (Flandreau, 2000; Flandreau and Mauriel, 2005; Einaudi, 1997, 2000 and 2001).

This monetary convention signed in 1865 by Belgium, France, Italy and Switzerland (later joined by Greece in 1868), aimed to introduce a harmonised framework – agreed by intergovernmental procedures – for the coinage and exchange of specie, i.e. to create a common currency standard. The agreement was parsimonious, devising a basic set of rules associated with very light enforcement. In the absence of a supranational structure, the delegated powers, the practical implementation, and the ordinary functioning of the Union were delegated to national institutions. The latter, subjected to legal arrangements whose loopholes left them ample room of manoeuvre, could favour or hinder the process of both monetary and trade integration. For example, they could restrict de facto the acceptance and convertibility of foreign coins in the domestic banking system, and possibly use different standards depending on the country of origin, thus generating heterogeneous effects.

Following recent methodological updates (i.e. Baier and Bergstrand, 2007, Glick and Rose, 2016), and adapting them to a reality of "comprehensive importance" such as the LMU,[1] I use a recently published database (RICardo) on international trade in historical perspective, and an innovative approach (Gowa and Hicks, 2013) to identify "within"-Union trade effects. This allows for the existence of heterogeneous effects on trade flows, which may have occurred for a number of reason, ranging from the structure of trade itself to finance and politics.

Using, first, a gravity model and, second, structural break analysis, on one hand I confirm the results of the pioneering work of Flandreau (2000), who found an insignificant effect of the LMU on overall within-Union trade. On the other hand, I explicitly consider factors related to the changing conditions in the international environment affecting the LMU underlying economic foundations (i.e. the limits on silver coinage established in 1874) and the rules of the Union (i.e. the new terms for

[1] In his encyclopaedic work "A History of Banking in all the leading nations", Sumner (1896) decides to devote an entire chapter to the LMU despite framing its analysis within national boundaries otherwise. This is due to the belief of the author that "the Monetary Union which since 1865 has bound France to Belgium, Switzerland, Italy and Greece is of […] comprehensive importance in its bearings upon the coin and auxiliary circulations of the allied countries" (Sumner, 1896, Vol.3, p.345).

coin redemption agreed in the "liquidation clause" of 1885). In these cases, the data support the hypothesis that the LMU had significant trade effects for the period 1865-1874. These effects were nonetheless concentrated in the flows between France and the rest of LMU members. Finally, I confirm that only in 1874 (and not in 1885) there was a "LMU-wide" structural break, which affected the course of trade flows within the Union.

The chapter is organised as follows: Section 1.2 provides a brief literature review, trying to build bridges between monetary unions and trade within a hub-and-spokes perspective. Section 1.3 details a short history of the LMU, with particular attention to the decline of bimetallism and the "liquidation clause". Section 1.4 discusses the methodological approach, mainly dealing with issues inherent to gravity models, and describes the RICardo database.[2] Section 1.5 discusses the results, and provides a new interpretation of the Union's trade effects within a hub-and-spokes framework. Section 1.6 summarises and concludes.

## 1.2 Literature review

Theoretical contributions on regional monetary integration date back to Mundell's (1961) seminal paper on optimum currency areas. However it was only in the wake of the EMU, that the debate gained definitely momentum. The European Commission (1990) released a comprehensive report in support of the process of integration, providing an in-depth cost-benefit analysis on the consequences of a currency union.[3] Recently, De Grauwe (2014) and Krugman (2013) offered clear updates on the advantages and disadvantages associated to a currency union.[4] On the other side, the empirical literature reached its height at the dawn of the Euro,[5] when Rose (2000) obtained impressively large positive effects of the use of a common currency on bilateral trade flows (+>200%).[6] Rose's paper prepared the ground for the debate on the possible effects of the Euro, and served as a catalyst for fostering research in this domain. Successive studies critically looked to the

[2] In a previous version of this chapter I also used a reduced version of the Tena DB (Tena, forthcoming), with three year average trade flows.

[3] Despite the 2008 crisis unveiled a degree of "wishful thinking" (Krugman, 2013) – the piece in itself constitute an unprecedented effort assembling together contributions (347 pages in total) from eminent scholars and economists both from inside and outside the Commission. While acknowledging its limitations, we are convinced that it remains a valid reference.

[4] However, in the 19th century the state of knowledge and the level of sophistication regarding the economic consequences of currency union were extremely different, as exhaustively documented by Einaudi (2001) and Flandreau (2000, 2003), who adapted the debate to that historical reality.

[5] Rose decided to refer directly to the European Commission study (1990, op. cit.) in the title of his paper: "One Money, One Market: Estimating the Effect of Common Currencies on Trade".

[6] Even being completely aware of its criticism and further methodological improvements in the literature, Rose's paper (2000) remains "the most influential international economics paper" of its decade (Frankel, 2006, p.76).

exceptional magnitude of Rose's initial estimations.[7] Baldwin (2006) and Baldwin and Taglioni (2006) provide extensive and lively literature reviews of this debate, highlighting some errors that may affect not only Rose's results, but a large part of the following works based on gravity models: omitted variable bias; model mis-specification; and endongeneity[8] (see also Persson, 2001). Indeed, the consensus among scholars is that these issues should be fully taken into account in gravity models of bilateral trade to avoid biases in estimations (Flam and Nordström, 2006; Barro and Tenreyro, 2007; Baier and Bergstrand; 2007). In the literature, this is implemented mainly through the use (of different combinations) of country-pair and time effects, and favouring poisson or semi-poisson estimations (Santos Silva and Tenreyro, 2006) instead of OLS regressions.

Quantitative economic historians also looked with particular interest at trade related effects of different exchange rate regimes, being the gold standard the focus of the literature (Lampe and Sharp, 2014). Lopez-Cordova and Meissner (2003) investigated empirically the influence of the gold standard on bilateral trade flows. Their findings support the hypothesis that being on gold fostered commercial relations significantly, and up to +30%. The gold standard era is also of interest for monetary and financial historians, as scholars aim to understand the political economy behind the decision of adhering or not. Bordo and Rockoff (1996), Flandreau et al. (1998), and Meissner (2005) are seminal contributions in this areas. However, this strand of literature will not be at the core of this study.[9] Flandreau (2000) represents a solid work on the effects of currency unions on trade with both a historical and an empirical approach, focussing on the Latin Monetary Union (LMU). Being published the same year of Rose's seminal paper, at that time the author could not be aware of the decade of fierce debates that would have followed. Flandreau's results derive from a standard gravity model, and uses OLS regressions for cross-sectional data, repeated for three benchmark periods (1860s, 1870s, 1880s).[10] The author identifies the LMU using a dummy variable "which takes the value one when both countries in a pair belong to the 1865 Convention and zero when otherwise" (Flandreau, 2000, p.29), concluding that the LMU did not introduce any considerable bias to bilateral trade, as its coefficient is not statistically significantly different from zero in any of the three regressions. Flandreau and Mauriel (2005) look more extensively to trade relations and business cycles correlations during the 19th century, taking as references the LMU, the Scandinavian

[7] See Rose and van Wincoop, 2001; Glick and Rose, 2002; Micco et al., 2003; Rose and Stanley, 2004; Berger and Nitsch, 2005.

[8] Baldwin (2006), Baldwin and Taglioni (2006) and Baldwin et al. (2008) classified the errors following Olympics terminology, such as "Gold, Silver, and Bronze medal" mistakes, dealing with omitted variable bias, mis-specification, and time-related biases (i.e. the common use of the US price deflator).

[9] For a brief summary see Martin-Aceña, Martinez-Ruiz and Nogues-Marco (2011); for a comprehensive literature review see Morys (2011).

[10] A maximum of 30 observations per period.

Currency Union (SCU)[11] and the Austro-Hungarian currency union. As in Flandreau (2000), the LMU is found having no influence on its members' bilateral trade.

However, the literature inspired by Rose's study does not investigate how further economic integration on a regional basis, such as in the LMU case, may influence "within" and "external" trade flows. Egger and Pfaffermayr (2013) are an exception. Their empirical work aimed at identifying differences across intra-EU trade related to the process of European integration, separating countries on the basis of the duration of their membership, but neglected political and economic factors. In this respect, Baldwin (1994, 2006, 2008) advances the hypothesis of "hub-and-spoke" integration, where few leading nations (the "hubs") are better placed to generate interconnections with the other members (the "spokes"). Following Baldwin's arguments, these developments may be due either to the construction of a bilateral preferential agreements network creating "artificial" relative advantages for the "hub(s)", or to the natural consequences of an underlying Heckscher-Ohlin type of trade involving exchanges of differentiate goods between hub and spokes. In addition to Baldwin's theory, Flandreau (2000) suggests a role for the indirect effects of "investing abroad" within an area that envisaged a degree of monetary integration.[12] From a theoretical perspective, Albertin (2008) builds a framework where gains – in terms of trade effects – are not equally distributed among members of the currency union and depend on some (economic) "dissimilarities" among countries. Those "dissimilarities" can constrain the size of the gains. From a completely different perspective – walking on a bridge between Marxism and more traditional theories of international relations – dependency theory can also provide theoretical grounds for differences between hub and spokes, due to economic and socio-political constraints and distortions. These issues however are not explored in this chapter.[13]

The LMU institutional framework may have constituted a trade-enhancing environment through closer institutional relationships and an attempt of monetary harmonization. However, as suggested by recent trade theories, the LMU may not be a homogeneous construction that symmetrically shares benefits and costs among its partners, but a sum of entities diversely affected by the Union and its intergovernmental framework. For this reason, proxying the LMU with a single dummy could hide heterogeneous dynamics caused by a variety of reasons, from the institutional framework to the structure of trade.

The increasing availability of data, in parallel with several improvements in their treatment and estimations methods, constitute pivotal steps for the empirical

[11] In his previous paper, Flandreau (2000) uses the SCU as a control variable.
[12] For further discussion on the incentives related to economic integration *sensu lato* and particularly related to the EU dimension, see Pelkmans and Brenton (1997). For a comprehensive discussion see Flandreau (2000).
[13] For a thorough analysis of what dependency theory is, see Duvall (1978).

literature dealing with currency unions and (bilateral) trade. In an historical context, two databases have been created recently, RICardo (for further information see Dedinger and Girard, 2016) and Tena DB (Tena, forthcoming). The possibility of exploiting these new sources and the application of up-to-date econometric techniques, may help to shed additional light on the LMU-related trade issues. The additional introduction of two separate dummies, for hub-and-spokes and spoke-to-spoke relationships, will allow to clarify "within" trade phenomena. Finally, part of the analysis will also be devoted to understand possible *beggar-thy-neighbor* effects, i.e. whether trade benefits were created at the expenses of non-member countries. To my knowledge there is no previous contribution on this issue for my period of reference, and it may also serve to check whether the results are compatible with the estimations of heterogeneous LMU effects.

## 1.3 Historical context

The establishment of the LMU was not motivated exclusively by the French ambition to increase its political influence across Europe. It was also motivated by economic reasons (mainly related with the willingness of deepening trade relationships), as well as growing federative ideas and solidarity sentiments circulating throughout the continent (Flandreau, 2000; Einaudi; 2000). Those motivations were also highlighted by influential policy-makers of that time:

> "Back then in 1865, for a sentiment of federation and solidarity which prevailed in all economic relations in Europe [...] [and] that had to bind all people in currencies, exchanges, trade, common treaties, and for reasons of need, was established the monetary convention".[14]
>
> (Luzzatti, 1881)[15]

Indeed, the birth of the LMU came after a turbulent period for the majority of the European currencies – including those of the countries that will later join the LMU – partially related with the unexpected decline in the price of gold (Einaudi, 2007). The unilateral responses to the destabilizing effects of wide changes in the market bimetallic ratio often included modifications to the fineness of national silver coins, in an effort to reduce their intrinsic value and reinforce the legal bimetallic ratio(s). This was, for example, the case of Switzerland (1860) and Italy (1862). However,

[14] In Italian in the original: "Allora nel 1865, per un sentimento di federazione e di solidarietà che prevaleva in tutte le relazioni economiche dell'Europa […][e] che doveva avvincere tutti i popoli nelle monete, nei traffici, nei commerci, in trattati comuni, e per una ragione di necessità, fu stabilita la convenzione monetaria"

[15] Please refer to Appendix A.1 for further explanations on the pivotal importance of Luzzatti in Italian politics, and with particular regards to trade, monetary and finance issues. Appendix A.1 also provides extensive information on the relevance of his personal archive – preserved at the Istituto Veneto di Scienze, Lettere ed Arti in Venice – for this chapter.

the lack of coordination fragmented the European monetary system, as the new fineness of silver coins were not homogenous across countries. Perhaps, the 1865 monetary agreement was seen by policy-makers as the silver bullet capable of removing "every impediment to free transaction among the inhabitants of the four [signatory] states, deriving from the different fineness of their silver divisional currency".[16] Indeed, their objective was to eliminate trade disruptions and speculations deriving from such monetary distortions. The transcriptions of the debate in the Italian Parliament on the day of the approval of the agreement support this view: "The silver coins fineness variance [across countries], apart from offering opportunities to private speculations, had as an effect the restriction of the currency tender within the borders of the country of origin, so it is easy to imagine the consequent perturbations on the exchanges with the neighbouring populations." [17]

However, since its creation, the LMU was a purely intergovernmental structure (see Appendix A.3 for a complete chronology of LMU conferences and their main achievements),[18] which did not foresee any mechanisms or criteria clearly defining rights and obligations of the member states within the decision making process, consequently favouring international relations based on a hierarchical distribution of power (Fabbrini, 2015).[19] In addition, the LMU had to struggle for adapting with an ever-changing European and global economic situation. It underwent several structural reforms in a long-lasting fight for survival, which finally lost *de jure* in 1927. However, *de facto* its relevance started to fade away well before, already in the 1870s-1880s. In these two decades the LMU faced several challenges, but the historical literature usually highlight two major ones. The first was an external threat: bimetallism stability was declining and, contemporaneously, the gold standard was emerging as the overarching monetary reference (Flandreau and Oosterlinck, 2012; Meissner, 2005). The rise of the latter was neither inevitable nor happened abruptly, as it was the result of a combination of economic and political factors, deriving from

[16] In Italian in the original. See draft bill presented to the Italian Parliament for the approval of the LMU, 16 April 1866: "Signori! Il 23 dicembre 1865 è stata conchiusa e sottoscritta a Parigi fra i Governi d'Italia, Francia, Belgio e Svizzera una convenzione intesa a stabilire un mutuo accordo nella rispettiva legislazione monetaria e togliere ogni impedimento alle libere transazioni fra gli abitanti de' quattro Stati, derivante dal diverso titolo della loro moneta divisonaria dello scudo d'argento". Available at https://archivio.camera.it/.

[17] *Ibid.* In italian in the original: "Cotesta varietà di titolo negli spezzati dello scudo d'argento, a parte lo allettamento che offriva a profittevoli speculazioni private, ebbe necessariamente per effetto di restringere il corso delle stesse monete entro i confirni de' singoli stati d'origine, con quale perturbazione negli scambi delle popolazioni limitrofe è facile immaginare."

[18] In the course of its existence, LMU Member States organised 13 conferences for a varied set of purposes; more precisely in 1865 (founding convention), 1874, 1875, 1876, 1878, 1879, 1885, 1893, 1897, 1902, 1908, 1920 and 1921. In addition, International Monetary Conferences, where LMU members attended regularly, were held in 1867, 1878, 1881, and 1892. For further details, see De Cecco (1996).

[19] On the topic of intergovernmentalism and distribution of power, see Fabbrini (2015). To have an interdisciplinary overview on the consequences of an increased intergovernmentalism, see Adams, Fabbrini and Larouche (2016).

the rivalry between Germany and France (Flandreau, 2003). Potentially, market expectations on the viability of silver as a fundamental part of a global bimetallic standard could have been intertwined to those on the future of the LMU and its institutional architecture, indirectly influencing trade. Markets change their views in 1874, following the French (late 1873) and LMU (early 1874) silver minting restrictions, with a gradual adjustment of their beliefs on the sustainability of the bimetallic standard throughout the year (Flandreau, 1996; Flandreau, 2003; Flandreau and Oosterlinck, 2012). The second was an internal challenge: the troubled revision of the treaty in 1885 – Belgium temporarily left the Union – ended with the introduction of a "liquidation clause" (Cottrell et al., 2007), the new Article XIV of the agreement. The provision foresaw that:

> "In case of the denunciation of this convention, each of the contracting states shall be bound to redeem the silver 5-franc pieces which it shall have issued, and which shall be in the circulation or the public treasuries of the other states, by paying to those states a sum equal to the nominal value of the coins redeemed"
>
> (LMU Convention, signed on 6 November 1885)

The international "liquidation of balances", i.e. the repatriation of the respective silver coins to other LMU members, was an inconvenience arising from the constant depreciation of silver (with respect to gold), and a particular concern for France, which "held much more coin issued form the Mints of Belgium and Switzerland, and to some extent Italy, than was held by these Governments of the French coins" (New York Times, 1885). The transformation fuelled through this channel was believed to be so important for the member states, that they decided to stipulate a special arrangement – delineating the details of its potential implementation – and appended it to the convention (De Cecco, 1996; Bae and Bailey, 2011). In Willis (1901, p.236) own words, "the ratification of the treaty of 1885 really meant the abrogation of the Latin Union and the substitution of a *new monetary league* in its place".[20] The change of the rules, and the new division of risks and responsibilities arising from it, could also have been a game changer in the domain of international trade, as it was hampering the easiness of moving coins across borders.

Therefore, changes in LMU's rules and institutions should be taken explicitly into account in the empirical analysis of trade determinants. Indeed, as stated by Gowa and Hicks (2013), "[p]olitically powerful states can create agreements and institutions and implement them using the rules of the game that have as their raison d'être the production of heterogeneous effects across their members." In the case of the LMU, the drivers that may have favoured the creation of heterogeneous effects could have been the following: 1) the relevance of national institutions in

[20] Emphasis mine.

implementing the monetary agreement – for example the role of central banks[21] in providing facilities to favour (or halt) the procedures of exchanging coins, possibly discriminating by country of origin; 2) the changing "rules of the game" – i.a. the inclusion of the "liquidation clause", which in case of a dissolution of the Union, forced the return of divisionary (silver) coins to the respective countries of issue, in exchange of gold at its legal tender rate. Since Sumner (1896) and Willis (1901), the literature acknowledges the predominant role exerted by France within the LMU. Indeed, it was Paris the place chosen to hold conferences and meetings of the members of the Union, which – to use Sumner's words – "has bound France to Belgium, Switzerland, Italy and Greece". This vision is also supported by Einaudi, which refers to France as the "hegemonic power" within the Union (Einaudi, 2000, p. 304).

Consequently, the empirical approach will devote particular attention to these two issues, i.e. heterogeneous effects both in terms of geography (hub-and-spokes relationships) and institutions (due to the changes and challenges outlined above in this paragraph).

## 1.4 Methodology and data

The quantitative analysis presented in this chapter exploits RICardo,[22] a publicly available database that collects bilateral trade flows since the beginning of the 19th century onwards. The database includes trade values of both imports and exports, providing comparable series of data for the period under scrutiny.[23] For every country pair (country A and country B), RICardo database shows four bilateral trade data: imports from and exports to B recorded by A, and imports from and exports to A recorded by B – i.e. mirror flows. Depending on the method used by each country to record trade flows, discrepancies may emerge, and indeed are so common that a relevant part of the literature try to deal with such issue (see Dedinger and Girard, 2016). For the purpose of this research, I used three criteria to assemble the database: more reliable sources over less reliable sources (i.e. prioritising statistical offices/bureaux with higher historically recognised capability),

[21] To simplify, we use here the term "central banks". However, being in a transitory era where the institution of central bank is steadily but not rapidly emerging, it would be more precise to refer to the institutions involved as "national banks of issue", or "national issuing banks", this being particularly true in the cases of Italy and Switzerland for a relevant part of the period under scrutiny.

[22] RICardo – Research on International Commerce – is the result of the efforts of a team of economic historians, which initiated the project in 2004, with the aim of assembling a unique database including all world's bilateral trade flows, from the 19th century until WWII (as after WWII trade statistics are published and available online). More information about the project are available at www.ricardo.medialab.sciences-po.fr

[23] However, we are fully aware of the limitations of international trade historical statistics, with particular reference to reliability and comparability. Indeed, until approximately 1850s statistics record values in constant prices; before 1870s they mainly refer to the "port of transit"; since the 1870s they report the nationality of the vessel of origin. It is only at the beginning of the 20th century when public officers in charge of statistics start to investigate further the real country of origin. See Tena (1992) for further discussion.

longer time-series data over shorter time-series data (to avoid "jumps" in trade data only due to a change in the source used), and imports data over exports data, as in a historical context they are more reliable (see i.a. Tena, 1992). The correct selection of time and space boundaries also constitutes a key issue. Concerning space, I followed Flandreau (2000), and restricted the analysis to intra-European trade flows. The sample is representative as it is approximately equal to 80 per cent of total world trade (Bairoch, 1996). The period of analysis is important for two main reasons: 1) endogeneity concerns and 2) understanding exactly what is measured with the LMU dummy. To control for endogeneity, I follow Head and Mayer (2014), and I include a period previous to the signature of the Monetary Convention. I expand the database backward until 1861. It is not possible going further back, as this would imply a significant and non-casual loss of observable dyads. Moreover, I should also highlight that Italy, a LMU member, became unified only in that year.[24] On the other end of the database, the LMU lasted *de jure* until 1927. There is little doubt that after WWI the LMU lost completely its meaning (Bae and Bailey, 2011), however it is still unclear when it is exactly its end *de facto*. Consequently, the chapter will analyse the period 1861 – 1913, allowing for three different time specification for the LMU dummy, to cover the possibility to have diverse trade effects related to a set of key events, which will be further discussed below in this section – together with the rest of the variables. The final database consists of an unbalanced panel of more than 6,500 dyads (see Table 1.1 for summary statistics), and contains 53 year of observation (1861-1913).

**Table 1.1: Summary statistics for the main variables**

| VARIABLES | Description and sources | N | mean | sd | min | max |
|---|---|---|---|---|---|---|
| imports | Imports from country j to country i *RICardo Database* | 6,503 | 4.259e+06 | 7.518e+06 | 0 | 8.041e+07 |
| lnPOP | Logarithm of population *Maddison Project Database* | 6,650 | 18.48 | 1.416 | 15.50 | 21.81 |
| lnGDP | Logarithm of GDP *Maddison Project Database* | 5,770 | 20.23 | 1.660 | 15.75 | 24.70 |
| lndistcap | Logarithm of the distance between capitals *CEPII GeoDist Database* | 6,650 | 6.905 | 0.621 | 5.153 | 8.003 |
| contig | Existence of a shared border in a dyad *CEPII GeoDist Database* | 6,650 | 0.218 | 0.413 | 0 | 1 |
| LMU | dummy variable for dyads where both countries are LMU members (time-variant), with three alternatives related to LMU effects: 1865-1913 (LMU), 1865-1885 (LMU1885), and 1865-1874 (LMU1874) | 6,650 | 0.131 | 0.337 | 0 | 1 |

[24] The consequences of such "epoch-making event" (Federico and Tena, 2013, p.1) on trade are definitely not negligible. Italian trade flows are not available before 1861, and despite the impressive efforts in the literature for reconstructing early 19th century imports and exports of "Italian" polities (Federico and Tena, 2013), these are not comparable and cannot be included in the database

| | | | | | | |
|---|---|---|---|---|---|---|
| | *Author's elaboration* | | | | | |
| LMUFrance | dummy variable for dyads which includes France (the hub) and any of the other LMU members (a spoke) (time-variant), same three alternatives as above (see LMU variable) *Author's elaboration* | 6,650 | 0.0589 | 0.236 | 0 | 1 |
| LMURest | dummy variable for dyads where both countries are LMU members, but excluding France (two spokes) (time-variant), same three alternatives as above (see LMU variable) *Author's elaboration* | 6,650 | 0.0716 | 0.258 | 0 | 1 |
| GS | dummy variable for dyads where both countries adhere to the gold standard (time-variant) *Author's elaboration on Officer* | 6,650 | 0.415 | 0.493 | 0 | 1 |
| SCU | for dyads where both countries are members of the Scandinavian Currency Union (time-variant) *Author's elaboration* | 6,650 | 0.0241 | 0.153 | 0 | 1 |
| LMU-other | dummy variable for dyads where one country is a LMU member and the other is not (time-variant), same three alternatives as above (see LMU variable) *Author's elaboration* | 6,650 | 0.412 | 0.492 | 0 | 1 |
| France-other | dummy variable for dyads which includes France (the hub) and any other non-LMU member (time-variant), same three alternatives as above (see LMU variable) *Author's elaboration* | 6,650 | 0.134 | 0.340 | 0 | 1 |
| LMURest-other | dummy variable for dyads where one country is a LMU member (excluding France) and the other is not (time-variant), same three alternatives as above (see LMU variable) *Author's elaboration* | 6,650 | 0.279 | 0.448 | 0 | 1 |
| AllianceTreaty | Dummy variable signalling a formal alliance (including mutual defense pacts, neutrality and non-aggression treaties, ententes, etc.) between the dyad (bilateral treaties) or among a number of countries including those of the dyad *Author's elaboration on Correlates of War Project* | 6,650 | 0.0995 | 0.299 | 0 | 1 |

Source: Author's elaboration

The analysis relies on an augmented gravity model, based on the theoretical contributions of i.a. Helpman and Krugman (1985) and Anderson and Van Wincoop (2003), which explains bilateral trade flows by transaction costs and economic size:

$$(1) \qquad X_{ijt} = \beta_0 + \beta_1 \ln(POP_{it} * POP_{jt}) + \beta_2 LMU_{ijt} + \beta_3 GS_{ijt} + \beta_4 SCU_{ijt} + \\ + \beta_5 AllianceTreaty_{ijt} + \gamma_{it} + \delta_{jt} + \theta_{ij} + \epsilon_{ijt}$$

where $X_{ijt}$ denotes the logarithm of nominal imports flows from country j (exporter) to country i (importer) in year t.[25] The economic size of country i and j at time t are proxied by the product of their population (as in Huberman, Meissner and Oosterlinck, 2017), due to limited availability of GDP data (used as robustness test). LMU is a dummy variable taking the value of one when both countries pertain to the LMU and zero otherwise. This variable varies over time as the database include a period prior to the Union, and also retains a (minimum) cross-sectional variance as not all members entered at the same time. Such characteristics allows to include pair fixed effect in the model without incurring in problems related with collinearity. In the "baseline", the LMU is considered to last from 1865 to 1913. Alternatively, two other dummies are constructed: LMU1874 and LMU1885. The first aim to understand whether market beliefs on the sustainability of the bimetallic standard influenced the LMU trade effects (LMU = 1 from 1865 to 1874). On the other hand, the second aims to understand whether the changing nature of the treaty, and its "liquidation clause" in particular, was detrimental to within-union trade flows (LMU = 1 from 1865 to 1885). In any of these three specifications, the LMU dummy aims to quantify the "overall" LMU effects on trade (as in Flandreau, 2000). GS and SCU are two additional control variables. GS is a dummy variable which takes the value of 1 if both countries i and j are in the gold standard at time t, and zero otherwise. SCU is a dummy variable identifying the Scandinavian Currency Union (=1 if both countries are SCU members and =0 otherwise). "AllianceTreaty" is a dummy variable which takes the value of 1 when a formal alliance (including mutual defense pacts, neutrality and non-aggression treaties, ententes, etc.) between the dyad (bilateral treaties) or among a number of countries including those of the dyad has been signed. Data are from the Correlates of War Formal Alliance dataset. Different measures of military alliances, such as "defense pacts", which are "the highest level of military commitment, requiring alliance members to come to each other's aid militarily if attacked by a third party" (Gibler, 2009), are also used as further robustness tests. Introducing another dummy identifying countries shadowing LMU standards would have been ideal, however the limited number of observations contained in the database for such group of countries (see Appendix A.2 for the list of countries shadowing the LMU standards) do not allow to do so. Following Head and Mayer (2014), I include in the main specification of the model also importer time-varying effects ($\gamma_{it}$), exporter time-varying effects ($\delta_{jt}$), [26] and pair fixed effects ($\theta_{ij}$). In this way it is possible to account for factors such as macroeconomic policies or

[25] When "poisson" regression is used, then imports are inserted in level and not in logarithmic scale, as the poisson function automatically adapts the level to its logarithmic correspondent.

[26] Importer and exporter time-varying effects consist in importer and exporter fixed effects multiplied by year fixed effects.

consequences deriving from trade treaties (i.e. tariff levels, a concern of particular importance due to the parallel development of the Cobden-Chevalier network, see discussion below), importer and exporter GDP and GDP per capita (separately), and other transaction costs, such as distance, contiguity, and common languages (including pair fixed effects automatically excludes these variables from the equation due to collinearity).[27] In particular, the inclusion of pair fixed effects is in line with Baier and Bergstrand (2007) suggestion for ruling out possible endogeneity biases deriving from previous level of trade exchanges (i.e. the argument being that nations with intense trade relations can be more prone to reach an international agreement, such as the LMU, among themselves), or other factors like pre-monetary convention exchange rate agreements, informal coinage arrangements, previous homogenization of currency standards. Separate model specifications with (a) importer and exporter fixed effects with year fixed effects, and (b) importer and exporter time-varying effects have also been considered for comparative purposes. However, the choice of including $\gamma_{it}$, $\delta_{jt}$, and $\theta_{ij}$ is in line with what suggested in the literature (see i.a. Baldwin and Taglioni, 2006). Using different specifications – as (a) and (b) – influence the results, as expected, as the risk of incurring in an omitted variable bias is higher. Therefore, the results of these models should be considered sub-optimal with respect to the specification included in the text and should not be interpreted as robustness tests, as highlighted by Glick and Rose (2016). For example, they do not take into account tariffs explicitly. Even though several papers relativised the role of tariffs, they mainly focused on the beginning of my period of analysis. Indeed, Accominotti and Flandreau (2008), i.a., argue that trade liberalization (in the form of trade agreements) achieved little, and this being particularly true in the 1860s-1870s decades, both for institutional and political reasons. Lampe (2009) finds no effects of those years of liberalization (by the means of bilateral treaties) on overall trade, nevertheless he argues that product-specific preferences are effective in enhancing trade in goods pertaining to the categories directly affected by non-generalised tariff reductions, mainly manufacturing. In a successive publication, Lampe (2011) stresses the *ex-ante* economic and political forces as main drivers and pillars of the success for this 19th century European integration experiment, rather than any substantial overall *ex-post* results. In addition, Federico and Vasta (2015) argue that – using Italy as a case study – trade restrictiveness measures were probably overestimating the tariff-based protection, downplaying the role of tariffs in economic development during the pre-WWI era.

[27] Before the Baier and Bergstrand (2007) contribution, it was a standard procedure in literature to proxy for transaction costs by measuring distance between countries pair (in logarithm), and including a dummy that takes value one when a dyad has a common border (called "contiguity"). I do so in one robustness test (see Section 5). In our case distance measures and contiguity dummies are from CEPII GeoDist Database. Distance therefore is a computation of geodesic distance on the basis of the "great circle formula" and using capital cities in term of population, "distcap" variable in CEPII GeoDist Database. In addition, common language is also inserted in the regression as an additional robustness test (results are not reported for simplicity, but are available upon request).

On the other hand, Flandreau and Mauriel (2005) include a measure of protection[28] both for the importer and the exporter country. For the period they analysed, 1880-1913, their inclusion has relevant effects on the final estimations, particularly to those of the "gold standard" dummy and the "LMU" dummy. The authors explain the variation in the gold standard dummy, i.e. reduction of the coefficient when introducing protection measures, arguing that countries on gold were also relatively more prone to "free trade" policy. The effect on LMU, i.e. the negative coefficient becoming not statistically significant, may be linked to the disruptive Italian-French tariff war of the 1890s. Finally, $\beta_0$ is the constant and $\epsilon_{ijt}$ the error term.

In addition, to consistently test the hypothesis of different trade patterns between hub-and-spokes flows and spoke-to-spoke flows, the LMU dummy is substituted by LMUFrance and LMURest, also dummy variables. The former takes value one when describes dyads which includes France (the hub) and any of the other LMU members (a spoke), and zero otherwise. The latter instead identify a bilateral trade flow between two spokes, both LMU members (=1; and 0 otherwise)

$$(2) \quad X_{ijt} = \beta_0 + \beta_1 \ln(POP_{it} * POP_{jt}) + \beta_2 LMUFrance_{ijt} + \\ + \beta_3 LMURest_{ijt} + \beta_4 GS_{ijt} + \beta_5 SCU_{ijt} + \beta_6 AllianceTreaty_{ijt} + \gamma_{it} + \delta_{jt} + \\ + \theta_{ij} + \epsilon_{ijt}$$

Finally, a variation of equation (2) is considered to test whether the trade-enhancing effects of the monetary agreement where obtained at the expenses of non-members, i.e. if the creation of the LMU had *de facto beggar-thy-neighbor* effects, as argued for other interwar agreements by a consistent part of the historical literature (see i.a. Aldcroft, 2001). As suggested in Gowa and Hicks (2013) if the database contains only a limited number of countries (16 in my case) it is preferable, due to a high risk of collinearity, not to include at the same time dummies that – as in equation (1) and (2)– detect intra-agreements trade flows (LMU, LMUFrance, LMURest, GS, SCU) and those that try to capture eventual trade diversion effects ("*beggar-thy-neighbor*" dummies: LMU-other; France-other; and LMURest-other) outside the block.

The quantitative analysis will rely on the use of Poisson estimators. Indeed, basic econometric procedures, such as the OLS procedure has increasingly been challenged by scholars, i.a., Santos Silva and Tenreyro (2006). The reasons for discarding OLS estimations in favour of Poisson may be clustered in three major groups (UNCTAD and WTO, 2012): (1) Poisson estimator is consistent with fixed effects, a rare property for a nonlinear maximum likelihood estimator; (2) it is able to deal with zero values, a situation that may arise when there is no trade between a country pair, automatically considering those observations in the estimates; (3) Coefficients obtained from a Poisson regression are of unequivocal interpretation,

[28] Protection is defined as "the ratio of custom revenues to total trade".

and retain the same meaning as in OLS estimations with a logarithmic dependent variable.

## 1.5 Results

The results from the gravity equation models are presented in Table 1.2. I confirm previous findings (i.a. Flandreau, 2000), of an overall non-significant effect of LMU on within-Union bilateral trade flows during the period 1865-1913. This is also true when separating flows between France and the rest of LMU members on one side, and among the rest of the LMU members on the other. However, when contemplating the LMU as "active" only for the periods when market still considered the bimetallic standard as viable, the LMU produced positive effects on bilateral trade flows, but for those between France and the other members, and not for those among the rest of members. These results are in line with the historical evidence presented in this text.

Results in column 1 shows that the LMU did not exert any positive effects on trade among its members, when considering 1865-1913 as a period of reference for its existence, i.e. from its creation until the beginning of the WWI. Its "overall" effects are not significant. When discerning France-related trade flows from the rest of the Union, results are again in line with the conventional knowledge of no LMU-related trade effects (column 2). However, when interacting the LMU with a time dummy, to focus on the period from 1865 to 1885, until the moment in which the "liquidation clause" is introduced in the treaty, the coefficient of the LMU dummy becomes significant, and negative (column 3, LMU<0). This may reflect that trade links between France and the rest of the LMU were deteriorating in the long term, as were the functioning of LMU institutions that may have cause such drawback (column 4, LMUFrance<0). Nevertheless, in the 1865-1885 period the LMU coefficient is positive (LMU1885>0), but these positive effects are concentrated in the flows from and to France (column 4, LMUFrance1885>0). Overall, the "LMU" effects in 1865-1885 are not significantly different from zero (LMU+LMU1885=0). However, when the period of LMU "*de facto* effectiveness" is reduced to 1865-1874, year in which markets started requiring a premium for silver (Flandreau and Oosterlinck, 2012), meaning that the market started downgrading the chances of bimetallism to last, LMU effects on trade flows are positive (column 5, LMU+LMU1874>0), and concentrated in the flows from and to France (column 6, "LMUFrance1874"). France-directed trade may have several explanations, ranging from the structure of trade itself to finance and politics. Indeed, the significant effects on trade between France and the rest of members may be the consequence of an integration that fostered the development of an underlying Heckscher-Ohlin type of trade, involving exchanges of differentiate goods between the hub and the spokes. They can also be related to the enhancement of capital exports – from France to the rest of the members – that in turn would boost trade, as part of these financial flows "would lead to an increase in demand on the part of the borrowing nation of

foreign goods" (Flandreau, 2000). In addition, the contribution of France to monetary stability of the LMU was also important, through the role of the Banque de France – the principal institution in the LMU – in supporting both domestic and foreign silver (Flandreau, 1996), and this could have had spillovers on trade. Summarising, as Luzzatti (1883, cited in Nardi Spiller, 1994, p. 366) remarked, "bimetallism, limping as today, could not stand without that great centre of attraction and compensation that is France".[29] However, as this research uses aggregate trade data, it is not possible to separate empirically these effects.

Further, in line with what expected, the coefficients of other variables are stable across the different specifications included in Table 1.2. The attraction "size" (the natural logarithm of the product of population in country i and j) is positive and significant. The gold standard dummy is positive and significant, in agreement with the literature on its trade enhancing role (i.a. Lopez-Cordova and Meissner, 2003). The SCU reports an unexpected negative sign, but it is important to remember that all dyads where SCU=1, have also GS=1, so the coefficient would represent the SCU effects net of the GS, which is somewhat artificial. However, if reading together the two coefficients, they approximately average out. The effects of formal alliances ("AllianceTreaty") are negative. Indeed, there is no clear-cut lesson in the literature, and the sign may vary depending on the content of the treaty (robustness test provided in the subsection below), on the perceived signatories' commitment (as the benefits deriving from trade to income can be translated into increases in military power, if the parties involved do not trust each other, they have the incentive in lowering trade rather than increasing it, see Gowa and Mansfield 1993; Gowa 1994), and on the importance that weapons, ammunitions, and other items related to public procurement have on overall trade (which at the time was non-negligible, see Flandreau, 2000).

**Table 1.2: Bilateral trade flows and monetary agreements, 1861-1913.**

| | (1)<br>LMU<br>1861-1913 | (2)<br>LMU<br>1861-1913 | (3)<br>LMU<br>1861-1885 | (4)<br>LMU<br>1861-1885 | (5)<br>LMU<br>1861-1874 | (6)<br>LMU<br>1861-1874 |
|---|---|---|---|---|---|---|
| LMU | -0.127<br>(0.094) | | -0.182*<br>(0.095) | | -0.158*<br>(0.094) | |
| LMUFrance | | -0.132<br>(0.093) | | -0.209*<br>(0.095) | | -0.147*<br>(0.094) |
| LMURest | | 0.0817<br>(0.159) | | 0.129<br>(0.166) | | 0.0810<br>(0.163) |
| LMU1885 | | | 0.155***<br>(0.0336) | | | |
| LMUFrance1885 | | | | 0.167*** | | |

[29] In Italian in the original: "Il bimetallismo, zoppo qual è oggidì, non potrebbe sostenersi senza quel grande centro di attrazione e di compensazione che è la Francia".

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | (0.0330) | | |
| LMURest1885 | | | | -0.222*** | | |
| | | | | (0.059) | | |
| LMU1874 | | | | | 0.205*** | |
| | | | | | (0.055) | |
| LMUFrance1874 | | | | | | 0.205*** |
| | | | | | | (0.055) |
| LMURest1874 | | | | | | -0.105 |
| | | | | | | (0.093) |
| lnPOP | 1.665*** | 1.665*** | 1.664*** | 1.654*** | 1.663*** | 1.658*** |
| | (0.190) | (0.190) | (0.190) | (0.189) | (0.190) | (0.190) |
| SCU | -0.441*** | -0.441*** | -0.459*** | -0.449*** | -0.473*** | -0.467*** |
| | (0.092) | (0.092) | (0.093) | (0.093) | (0.094) | (0.094) |
| GS | 0.295*** | 0.295*** | 0.259*** | 0.253*** | 0.262*** | 0.264*** |
| | (0.040) | (0.040) | (0.039) | (0.039) | (0.039) | (0.039) |
| AllianceTreaty | -0.157*** | -0.156*** | -0.158*** | -0.132*** | -0.155*** | -0.140*** |
| | (0.025) | (0.025) | (0.024) | (0.025) | (0.025) | (0.025) |
| N | 6,503 | 6,503 | 6,503 | 6,503 | 6,503 | 6,503 |

Source: Author's elaboration

Notes: Poisson regressions. Dependent variable: Imports (value). All regressions include a constant, importer-year, exporter-year and dyad fixed effects, not reported for the sake of simplicity. Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1.

**Robustness tests**

Additionally, to ensure the robustness of these findings, a set of alternative specifications have been considered, and results are included in Table 1.3.

As a first robustness test, I run the standard gravity model used by Flandreau (2000) in order to compare the results with my database extracted from RICardo (Column (1) in Table 1.3). The only differences are in the dependent variable, that in my regression is "imports" only (as I take into account the development of the debate on gravity models, e.g. Baldwin and Taglioni, 2006; Glick and Rose, 2016), whereas in Flandreau's paper (previous to that debate) is represented by "total trade" (exports+imports), and in the variable representing the economic size which, to maintain coherence, in my regression is represented by the natural logarithm of the product of population of country i and j, instead of the logarithm of the product of total trade in country i and j, for the period 1861-1885. In addition, the current analysis includes annual observations for each country pair, meaning – in practice – that relies on a panel data set structure. Flandreau's analysis instead, is cross-sectional in nature. All the variables have the expected signs, and are in line with Flandreau's estimations. In addition, to have a simply and clear picture of the sensitivity of results to alternative specifications, I report in this subsection further robustness tests. To be concise, I focus on the main specification, the one separating trade flows between France and other members from those among the rest of the members, for the period 1865-1874. In column (2), I show the results using OLS, and ln(1+trade) as dependent variable (to avoid subjective truncation). However, literature suggest (e.g. Santos Silva and Tenreyro, 2006; Gomez-Herrera, 2013) that OLS – even if corrected for information losses (truncation) – does not behave well if heteroscedasticity is present in data. Indeed, in this case, estimators will not be consistent. The gold standard coefficient turns negative (and non-significant), consistently with evidence collected in Gomez-Herrera (2013). Coefficients of LMUFrance and LMURest does not change sign, but their significance is affected. However, even if the specification is ill-defined and possibly biased, significant difference between the two remains. I also test specification: a) excluding dyad fixed effects and cluster errors instead, to allow more variance in the data (column 3); b) excluding Germany from the data (column 4), as literature suggests that results may be sensible to the evolution of trade outside the currency block (e.g. Glick and Rose, 2016); c) including GDP data instead of population data (column 5), which have the benefit of reflecting more closely the "economic mass", but the cost of consistently reducing the sample (-12%); d) considering only those treaties which implied "the highest level of military commitment, requiring alliance members to come to each other's aid militarily if attacked by third party", technically defined as "defense pacts" (Gibler, 2009). In general, across different models the LMUFrance1874 coefficient is always positive and significant. The LMURest coefficient is always negative. However, its significance depends on the

specification. Nevertheless, the central argument of this chapter, a consistent difference between LMUFrance and LMURest, is stable and significant across all specifications. Therefore I can argue that these results do not depend on specification choices (Table 1.3).

**Table 1.3: Robustness tests**

| | (1) Flandreau's specification (OLS) | (2) OLS [ln(1+trade)] | (3) poisson, clustered error no dyad FE | (4) PPML clustered error | (5) poisson, without Germany | (6) poisson, with GDP instead of POP | (7) poisson, only defense agreements |
|---|---|---|---|---|---|---|---|
| LMU | 0.0209 | | | | | | |
| | (0.093) | | | | | | |
| LMUFrance | | -0.214 | 0.865*** | 0.370 | -0.146 | -0.101 | -0.235** |
| | | (0.179) | (0.204) | (0.294) | (0.095) | (0.099) | (0.092) |
| LMURest | | 0.366 | 0.216 | -0.224 | 0.128 | 0.260 | 0.122 |
| | | (0.265) | (0.529) | (0.451) | (0.170) | (0.161) | (0.161) |
| LMUFrance1874 | | 0.153 | 0.508* | 0.624*** | 0.138** | 0.205*** | 0.227** |
| | | (0.133) | (0.280) | (0.123) | (0.052) | (0.055) | (0.054) |
| LMURest1874 | | -0.380* | -0.491 | 0.046 | -0.378*** | -0.129 | -0.207** |
| | | (0.200) | (0.405) | (0.171) | (0.082) | (0.096) | (0.092) |
| lndistcap | -1.716*** | | | | | | |
| | (0.056) | | | | | | |
| contig | 0.441*** | | | | | | |
| | (0.085) | | | | | | |
| lnPOP | 0.946*** | 2.071*** | 0.730*** | 0.613*** | 1.630*** | | 1.612*** |
| | (0.021) | (0.190) | (0.102) | (0.059) | (0.190) | | (0.188) |
| lnGDP | | | | | | 1.567*** | |
| | | | | | | (0.179) | |
| SCU | 1.487*** | 0.965*** | 1.404*** | 0.555* | -0.479*** | -0.459*** | -0.415*** |
| | (0.231) | (0.171) | (0.284) | (0.292) | (0.094) | (0.094) | (0.093) |
| GS | | -0.015 | 0.720*** | 1.038* | 0.195*** | 0.284*** | 0.293*** |
| | | (0.0988) | (0.211) | (0.102) | (0.039) | (0.041) | (0.040) |
| AllianceTreaty | | 0.090 | 1.204*** | 0.334 | -0.189*** | -0.137*** | |
| | | (0.064) | (0.222) | (0.209) | (0.024) | (0.025) | |
| Defense | | | | | | | 0.040 |
| | | | | | | | (0.045) |
| N | 2,668 | 6,503 | 6,503 | 6,503 | 5,474 | 5,714 | 6,503 |

Source: Author's elaboration

Notes: Imports. All regressions include a constant, column (2) to (7) also importer-year, exporter-year and dyad fixed effects (unless differently specified) not reported for the sake of simplicity. Robust standard errors in parentheses (unless differently specified); *** p<0.01, ** p<0.05, * p<0.1.

Nevertheless, the gravity model alone is not able to identify beyond any reasonable doubts the precise date in which the LMU power (in terms of within-Union trade creation) started to fade away. Further tests are needed, and they will be provided in the subsection below.

**LMU trade effects: When was the turning point? An assessment of structural breaks**

Once identified the effects of the 1874 and 1885 events through the use of gravity models, the readers may still wonder whether these outcomes may simply reflect other external shocks, like wars or changing trade patterns. The latter is a particular concern for 1885, which indeed may only capture, endogenously, the persistency of the decline generated by the 1874 turmoil. To test my hypotheses, then, I need to reinforce my analysis with structural break analysis, focusing on bilateral trade relations. The aim is to understand whether LMU countries bilateral trade flows are experiencing a "structural break" in these dates. The procedure used is standard in the literature, and consist in performing a Wald test of whether the coefficients of trade flows in a specific country-pair time series regression are varying or not ($H_0$: no structural break).[30] Table 1.4 shows the results of the test for LMU country-pairs in 1874 and 1885. All the time series analysed, excluding those concerning Switzerland – France and Switzerland – Italy (which could be subject to the flaws typical of Swiss trade data that are less evident in a panel data structure; see Tena, 1992), show a structural break in 1874. In 1885 instead, there is no evidence of a LMU-wide structural break.

**Table 1.4: Structural break tests, LMU country-pairs trade flows**

| Country pairs | Structural break in 1874 | Structural break in 1885 |
|---|---|---|
| Belgium – Switzerland | YES** | NO |
| France – Belgium | YES** | YES** |
| Italy – Belgium | YES*** | NO |
| Belgium – Greece | n.d. | n.d. |
| France – Greece | YES* | NO |
| Switzerland – France | NO | NO |
| France – Italy | YES* | YES** |
| Italy – Greece | YES** | NO |
| Switzerland – Italy | NO | NO |
| Greece – Switzerland | n.d. | n.d. |

Source: Author's elaboration
Notes: *** p<0.01, ** p<0.05, * p<0.1. Approximately 5% of data for Italy – Greece have been interpolated to allow the test to be performed. n.d.= no data.

[30] This procedure is robust to unknown forms of heteroscedasticity, differently from the traditional Chow test.

Nevertheless, whereas evidence showed above is sufficient to exclude a LMU-wide effect of the 1885 treaty reform on trade flows, there is still the need of further analysis for avoiding a sort of "false positive" identification. Indeed, I must be sure that the identified 1874 structural break affects only within-LMU trade flows. If also other trade relationships, i.e. members with non-members, would be affected, this would raise doubts over the proper identification of the structural break as a "LMU shock". Therefore I have to perform a further test for the robustness of my hypothesis, selecting external countries not affected by other exogenous shocks in 1874, as these could introduce noise in the results. Natural candidates are Britain, a symbol of stability, and those countries which also had a bimetallic standard but were not part of the LMU. Arguably, this is the best possible solution to isolate "pure-LMU" shocks. I proceed to analyse all the complete (i.e. no gaps between 1861 and 1913) time series available for these dyads. In any of these cases bilateral trade flows registered a structural break in 1874 (see Table 1.5).

**Table 1.5: Structural break tests, LMU-Britain trade flows**

| Country pairs | Structural break in 1874 |
|---|---|
| Belgium – Britain | NO |
| France – Britain | NO |
| Greece – Britain | NO |
| Italy – Britain | NO |
| Switzerland – Britain | n.d. |
| **Additional tests for other bimetallic countries** | |
| France – Austria-Hungary | NO |
| France – Spain | NO |
| Italy – Austria-Hungary | NO |
| Belgium – Spain | NO |

Source: Author's elaboration
Notes: *** p<0.01, ** p<0.05, * p<0.1. n.d.= no data, i.e. no sufficient data to perform the test.

Combining the outcomes of the gravity model with those of the structural break analysis, I am inclined to postulate that the LMU affected trade flows of its members. Results show that this was the case for trade flows between France and the rest of countries in the period 1865-1874, until its underlying economic foundations (i.e. bimetallism) were credible to the eyes of markets. As showed in this subsection, this represented a turning point in the evolution of trade between members. Since then, the LMU effects on trade flows diminished. Indeed, when considering the "full

pre-WWI period" of activity, gravity models do not find any influence on the Union on trade.

### *Beggar-thy-neighbor*

In this section, I try to shed some light on not only whether trade-enhancing monetary agreements actually manage to enhance trade among their members, but also whether they create distortionary effects diverting trade among member and non-member states to members' only relationships instead. To do so, I follow Gowa and Hicks (2013) and Yang and Martínez-Zarzoso (2014) methodology. Therefore, starting from the same gravity model specification, I drop the dummy variables related to monetary agreements, as – due to sample restrictions – they are collinear with the "new" dummies that I insert to identify eventual trade diversion, i.e. an increase in trade between members' and non-members' pairs. Overall, as it is possible to see in equation (1) reported in Table 1.6, the LMU had no trade diverting effects, when considering the period 1861-1913 (LMU-other=0). On the contrary, there is evidence that the gold standard had some trade diversion effects (GS-other<0). This is consistent with the evidence proposed in the literature (Meissner, 2005), explaining the adherence to gold standard in terms of trade-related network externalities.[31] The LMU appears to have trade diverting effects particularly in the periods when it enjoyed market credibility, i.e. until when bimetallism lost its attractiveness as an alternative to gold (LMU-other+LMU-other1874<0). It is important to note that results are consistent with the ones reported in Table 1.2, concerning trade effects of monetary agreements among their members.

[31] Meissner highlights also the importance of a more accessible borrowing and the level of development as drivers of gold standard membership.

## Table 1.6: Beggar-thy-neighbor trade and monetary agreements

| | (1) LMU 1861-1913 | (2) LMU 1861-1913 | (3) LMU 1861-1885 | (4) LMU 1861-1885 | (5) LMU 1861-1874 | (6) LMU 1861-1874 |
|---|---|---|---|---|---|---|
| LMU-other | 0.053 | | 0.082* | | 0.071 | |
| | (0.045) | | (0.046) | | (0.046) | |
| LMUFrance-other | | 0.158*** | | 0.270*** | | 0.256*** |
| | | (0.078) | | (0.078) | | (0.078) |
| LMURest-other | | -0.050 | | -0.087 | | -0.062 |
| | | (0.079) | | (0.080) | | (0.079) |
| LMU1885-other | | | -0.077*** | | | |
| | | | (0.017) | | | |
| LMUFrance-other1885 | | | | -0.284*** | | |
| | | | | (0.031) | | |
| LMURest-other1885 | | | | 0.119*** | | |
| | | | | (0.029) | | |
| LMU-other1874 | | | | | -0.101*** | |
| | | | | | (0.028) | |
| LMUFrance-other1874 | | | | | | -0.291*** |
| | | | | | | (0.039) |
| LMURest-other1874 | | | | | | 0.093*** |
| | | | | | | (0.036) |
| lnPOP | 1.686*** | 1.644*** | 1.697*** | 1.619*** | 1.692*** | 1.630*** |
| | (0.191) | (0.193) | (0.191) | (0.192) | (0.191) | (0.192) |
| SCU-other | 0.227*** | 0.227*** | 0.239*** | 0.234*** | 0.246*** | 0.237*** |
| | (0.051) | (0.051) | (0.051) | (0.051) | (0.052) | (0.052) |
| GS-other | -0.147*** | -0.147*** | -0.129*** | -0.126*** | -0.130*** | -0.124*** |
| | (0.020) | (0.020) | (0.020) | (0.020) | (0.020) | (0.020) |
| AllianceTreaty | -0.158*** | -0.156*** | -0.158*** | -0.131*** | -0.155*** | -0.136*** |
| | (0.025) | (0.025) | (0.024) | (0.025) | (0.024) | (0.025) |
| N | 6,503 | 6,503 | 6,503 | 6,503 | 6,503 | 6,503 |

Source: Author's elaboration

Notes: Poisson regressions. Dependent variable: Imports (value). All regressions include a constant, importer-year, exporter-year and dyad fixed effects, not reported for the sake of simplicity. Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

## 1.6 Conclusions

This chapter revises the conventional view that the LMU had no overall effects on international trade. I confirm the findings of Flandreau's (2000) pioneering work – being the first paper using cliometric techniques on such issues. In addition, however, I allow for heterogeneous effects on trade relations between France and the rest of the LMU members on one side, and among the rest of LMU members on the other side, characterising different periods of "LMU effectiveness" based on historical circumstances and evidence, and using an augmented gravity model which also take into account political powers. Within such framework, this study has shown that the LMU was relevant for trade flows under certain conditions.

Indeed, if analysing the entire period under consideration (1865-1913), estimates show an insignificant effect on overall within-LMU trade, a result that mirrors its institutional weaknesses. Nevertheless, when considering factors related to the changing conditions in the international environment affecting the LMU underlying economic foundations (i.e. the limits on silver coinage agreed upon in 1874) and the rules of the Union (i.e. the "liquidation clause" of 1885), the data support the hypothesis that the LMU had significant trade effects for the period 1865-1874. These effects were nonetheless concentrated in the flows between France and the rest of LMU members. Moreover, structural break analysis confirmed that only in 1874 (and not in 1885) there was a "LMU-wide" structural break, which affected the course of trade flows within the Union. These new findings are in line with primary sources obtained from archival research, and previous qualitative evidence available in the literature.

Even if it is tempting to expand and apply the results to present times, we should keep in mind that the LMU structure never reached a level of complexity and development similar to the current EU architecture: it did not foresee any prearranged form of structural intervention at the Union level, nor shared decision methods going beyond the intertwinement of varied international relations within a framework of pure intergovernmental procedures. Any comparison should therefore be extremely cautious taking into consideration the level of integration reached in contemporary times within the EU, being the Euro (and consequently a common European Central Bank) and the "community" method for decision making (emphasising the supranational sphere) two overarching examples. However, the LMU represented a political entity – with an inadequate institutional backbone – which struggled for decades to adapt itself to a fast-changing economic reality, and finally failed in its attempt. Under this perspective, the LMU provides potential lessons. The LMU limited engagement with supranational activities and its weak institutional setting – lacking of any shared space where to build constant, fluent,

and multi-stakeholder networks (with the exception of ad hoc conferences held in Paris) – was unsuccessful in establishing a consistent Union-level economic space.

Further research is needed to discern the drivers of the LMU heterogeneous effects on trade flows, to embrace (or reject) the hypotheses of 1) an underlying Heckscher-Olhin type of trade involving exchanges of differentiate goods within the LMU; 2) significant LMU-related capital exports influencing trade flows; 3) various institutional and political drivers associated to the LMU structure.

# APPENDIX A

# Appendix: Chapter 1

## A.1 Luigi Luzzatti in the Italian political arena

The importance of Luigi Luzzatti in the Italian political arena and its internationally respected role as a scholar in the discipline of economics are widely acknowledge both by historians and politicians. A clear example of its relevance is the publication dedicated to him by the Archive of the Italian Chamber of the Deputies, a privilege and a honour reserved to few other Italian personalities. The introduction of the book is signed by the President of the Chamber himself that wanted to actively contribute to the promotion of this historical document.

Luigi Luzzatti actively worked for almost fifty years (1871-1920) (to be precise Luzzatti started in 1869 working few months as Secretary General of the Ministry of Agriculture, Industry and Trade) within the Italian public institutions, as a deputy of the Chamber (in fourteen legislatures), as a Minister (of Treasury and Finance, in 1891-1892; 1896-1898; 1903-1905 and in 1906), as President of the Council of Ministers (1910-1911), and lastly as a Senator. In addition to that, for long time he was one of the Italian delegates to the LMU and to the International Monetary Conventions and, since 1875 until WWI, he was responsible, with different roles, for trade and tariff negotiations. During this long period, his work focused mainly in the following and largely relevant fields: Constitutional law, political economy, public finance, credit and banking, agricultural and industrial development, social rights, international trade and monetary issues, financial markets and capital flows. Unquestionably he was one of the key actors on political economy and finance matters, both when his party was in power and at the opposition.

The Luzzatti (personal) Archive in Venice (his home town) collects an impressive amount of documents since the family's donation to the Istituto Veneto di Scienze, Lettere ed Arti, authorised by the R.D. of 9 February 1933.

The Luzzatti Archive is constituted by 400 folders containing approximately 100,000 documents, of which 35,000 are letters addressed to or received from the most important European and Italian political and economic stakeholders of that time, such as Director Generals of diverse Bank of Issues, Presidents of the Council of Ministers, Senators and Deputies, LMU delegates, etc.

This appendix is based on the following documents:

Ballini P.L., P. Pecorari, F. Margiotta Broglio and M. Toscano (eds.) (2013), *Luigi Luzzatti. Discorsi Parlamentari*, Roma: Camera dei deputati – Archivio storico.

Franchini S.G. (2007), "Le carte di Luigi Luzzatti per la storia d'Italia", *Clio*, 4:625-639.

Istituto Veneto di Scienze, Lettere ed Arti official website: www.istitutoveneto.it.

Nardi Spiller C. (1994), "Luigi Luzzatti e l'Unione Monetaria Latina", in P.L. Ballini and P. Pecorari (eds.) *Luigi Luzzatti e il suo tempo: atti del Convegno internazionale di studio, Venezia 7-9 novembre 1991*, Venezia: Istituto Veneto di Scienze, Lettere ed Arti.

## A.2 LMU membership

**Table A.2.1: LMU (membership and shadowing) chronology**

| Country | Condition | Date | Period |
|---|---|---|---|
| Belgium | LMU founding member | 23 December 1865 (W) | 1865-1927 |
| France | LMU founding member | 23 December 1865 (W) | 1865-1927 (H) |
| Italy | LMU founding member | 23 December 1865 (W) | 1865-1927 (H) |
| Switzerland | LMU founding member | 23 December 1865 (W) | 1865-1926 (from 1920 Switzerland banned the imports of LMU coins) (H) |
| Greece | LMU member | 10 April 1867 declaration of intent by internal law made by Greece<br>18 November 1868 ratification of Greek admission by all member states (W) | 1865-1927 (H) |
| Algeria (French colony) | shadowing | 23 December 1865 (W) | n.a. |
| Austria-Hungary | shadowing (aligned for 25 francs gold only) | n.a. | 1870-1892 (E) |
| Bulgaria | shadowing | 17 May 1880 (W) | 1881-1914 (E) |
| Colombia (United States of) | shadowing | 9 May 1871 (W) | n.a. |
| Finland | shadowing (aligned for gold only) | 9 August 1877 (W) | 1878-1914 (E) |
| Peru | shadowing | 31 July 1863 (first shadowing the French system) (W) | n.a. |
| Poland | shadowing | 1926 (E) | 1926 (E) |
| Pontifical State | shadowing | 1866 (E) | 1866-1870 (E) |
| Romania | shadowing | 14 April 1867 law approval<br>1 January 1868 entrance into force (W) | 1867-1914 (E) |
| Russia | shadowing (aligned for gold only) | n.a. | 1886-1895 (E) |

| | | | |
|---|---|---|---|
| Serbia | shadowing | 11 November 1878 (W) | 187*-1914 (E) |
| Spain | shadowing | 19 October 1868 (W) | 1868-1914 (E) |
| Sweden | shadowing (aligned for gold only) | n.a. | 1868-1872 |
| Tunisia (French colony) | shadowing | 23 December 1865 (W) | n.a. |
| Venezuela (United States of) | shadowing | 11 May 1871 (W) | n.a. |

Source: Willis (1901), Einaudi (2007), and Helleiner (2003)

Notes: (W) = Willis; (E) = Einaudi; (H) = Helleiner. There are some discrepancies for some of the Balkans countries: (1) for Serbia, Einaudi states that it "adopted LMU type legislation in 1873 and started minting in 1874." (p.34), (2) for Bulgaria that it "adopted legislation in June 1880 and started minting bronze in 1881 and silver in 1882." As the 25 francs gold coin was never minted, Austria minted "gold trade coins", which never became part of the national monetary system, but they remained confined in an ad-hoc system for international trade and were exchanged following their value at the stock market (p. 34).

## A.3 LMU agreements – a chronology

**Table A.3.1: LMU conferences brief chronology and main achievements**

| Date and classification | Main achievements |
|---|---|
| 23 December 1865 - Convention | • LMU agreement signed (Belgium, France, Italy, Switzerland) for a 15 years period;<br>• Rules on coinage, particularly on fineness, weights and issuance;<br>• Open-ended admission clause: possibility to join for other interested countries. |
| 18 November 1868 – French Government declaration | • Greece admission ratified by all the LMU members. |
| 31 January 1874 – Additional Convention | • Coinage limits for 1874;<br>• Limits to "open-ended" admission clause: Admission formally subordinated to the previous agreement of all members. |
| 5 February 1875 – Declaration | • Coinage limits for 1875;<br>• Exceptional coinage concessions to Italy. |
| 3 February 1876 – Declaration | • Coinage limits for 1876. |
| 1877 Diplomatic correspondence | • Coinage limits for 1877. |
| 1878 Diplomatic correspondence | • Coinage limits for 1878. |
| 5 November 1878 – Declaration | • Coinage limits for 1879. |
| 5 November 1878 – Convention | • Extension of the LMU for a 6 years period. The agreement includes the possibility of a year-on-year renewal after the first six;<br>• Provisional suspension of the 5 francs silver coinage (despite the provisional nature of the measure, the prohibition of issuing new coins will remain valid until the end of the LMU);<br>• Stipulates the repatriation conditions for Italian divisionary coins |
| 20 June 1879 – Additional Act | • Foresees changes in the repatriation conditions for Italian divisionary coins (the Italian Parliament was called to choose between the 1878 and 1879 agreement, selecting the latter) |
| 6 November 1885 - Convention | • Extension of the LMU for a 5 years period. The agreement includes the possibility of a year-on-year renewal after the first five;<br>• Confirms and includes the "repatriation" principle (i.e. "liquidation clause");<br>• Specifies the "repatriation" rules; |

| | |
|---|---|
| | • Specifies the conditions under which the Banque de France will accept other members' coins. |
| 12 December 1885 – Additional Act | • Confirms the adhesion of Belgium to the LMU. |
| 15 November 1893 – Arrangement | • Regulates the "repatriation" of Italian divisionary coins |
| 29 October 1897 – Additional Convention | • Increases the coins/population ratio (from 6 to 7 francs per habitant). |
| 15 March 1898 – Additional Protocol | • Ends the circulation of Italian divisionary coins. |
| 15 November 1902 – Additional Convention | • Provisions on coins issuance |
| 4 November 1908 – Additional Convention | • Increases the coins/population ratio (from 7 to 16 francs per habitant);<br>• Regulates the "repatriation" of Greek divisionary coins. |
| 25 March 1920 – Additional Convention | • Regulates the reciprocal "repatriation" of divisionary coins between France and Switzerland;<br>• Provisions on coin issuance |
| 9 December 1921 – Additional Convention | • Regulates the "repatriation" of LMU divisionary coins from Switzerland (after they were declared out of circulation) |
| 28 December 1925 – Belgian Government Declaration | • Declares the willingness of Belgium of exiting the LMU;<br>• The other members agree on ending the LMU experience. |

Source: Einaudi (2001); Flandreau (2000, 2003); "Procès-Verbaux" of the different LMU conferences (1874; 1875; 1876; 1879; 1885; 1893); Treaties of the different LMU conventions and the agreements (1865; 1878; 1885; 1908).

## A.4 Gold standard – a chronology

**Table A.4.1: Classical Gold Standard adherence chronology**

| Country | Years |
|---|---|
| Austria-Hungary | 1892-1914 |
| Belgium | 1878-1914 |
| Denmark | 1872-1914 |
| Finland | 1877-1914 |
| France | 1878-1914 |
| Germany | 1871-1914 |
| Greece | 1885 and 1910-1914 |
| Italy | 1884-1894 |
| Netherlands | 1875-1914 |
| Norway | 1875-1914 |
| Portugal | 1854-1891 |
| Spain | *De jure* never adhered to the gold standard |
| Sweden | 1873-1914 |
| Switzerland | 1878-1914 |
| United Kingdom | 1774-1797 and 1821-1914 |

Source: Officer.

Note: The table reports information for all the countries included in the sample.

# ADDENDUM 1

## Addendum to Chapter 1

Jacopo Timini*

**Abstract**

The conventional view in economic history describes the Latin Monetary Union as an imperfect currency union, where member countries had different influence in shaping its functioning. In particular, France is often described as the "hegemonic power" within the Union (Sumner, 1896; Willis, 1901; Einaudi, 2001; Timini, forthcoming). Nevertheless, these judgments rely on qualitative evidence only. In this addendum, after summarising the characteristics of the LMU, I aim to elaborate a formal quantitative test based on Baldwin's approach (1994) and Mann's theory (1986) – with qualitative extensions, based on new archival evidence, when necessary – to confirm, or reject, this view.

## ADD 1.1 Introduction

Did the different members of the Latin Monetary Union (LMU) have all the same influence or was there a "great-power hub" (Gowa and Hicks, 2013), i.e. a "hegemonic" power, reflecting a "hub-and-spokes" structure?

In the context of the long 19th century, there were several experiments of monetary integration in the world (Cottrell, Notaras and Tortella, 2007). Their institutional diversity implies that any comprehensive comparative analysis – in line with Tan (2016) contemporary exercise – would need, first, a degree of abstraction and, second, a lengthy recollection of primary sources, including hard data, dispersed in archives in a myriad of different countries. To avoid these two shortcomings, I decided to focus – in this addendum – on Europe, and in particular on the LMU, and to use a within-Union approach for analysis. Indeed, the primary goal of the addendum is to explore the LMU institutional settings and understand whether member countries had different degrees of influence in shaping its functioning. Indeed, the LMU-related literature (Sumner, 1896; Willis, 1901; Einaudi, 2001; Timini, forthcoming) acknowledges the diversity of France, often describing the country as the "hegemonic power" of the Union. Nevertheless, these judgments rely on qualitative evidence only. In this addendum, after summarising the characteristics of the LMU, I aim to elaborate a formal quantitative test – with qualitative extensions, based on new archival evidence, when necessary – to confirm, or reject, this view.

The LMU was constituted by the 1865 monetary convention, signed by Belgium, France, Italy and Switzerland (later joined by Greece in 1868). The Union – based on purely intergovernmental methods – aimed to act as a catalyst for the creation of common currency standards, through the use of previously agreed principles for coinage and exchange of specie. Indeed, in the distinguished parsimony of the agreement, the international treaty provided only for a basic set of rules associated with a very light structure of enforcement, and no foreseen supranational entity. Within such framework, "the delegated powers, the practical implementation, and the ordinary functioning of the Union were delegated to national institutions" (Timini, forthcoming).

Within this context, I combine Baldwin's approach (1994, 2006, 2008) of "hub-and-spoke" integration, with Mann's theory of power (1986), and its IEMP model (it is an acronym which summarise the four elements which in Mann's view are the sources of social power: Ideological, Economic, Military and Political) to detect the existence of a great-power hub. Applying this method to the LMU, I will quantitatively portray the borders of "hub" and "spokes", during the period just before the signature of the agreement (to avoid endogeneity which may affect some of these indicators), to capture the relative "weights" of each future member of the Union. I will enhance the quantitative analysis with new archival evidence (Luzzatti

Archive) when needed, and, in case of consistency of a majority of indicators across the realms, I will confirm the existence of a "great-power hub" (Gowa and Hicks, 2013) within the LMU. The "enhanced" quantitative analysis developed in this addendum confirms the conventional wisdom of France as a hegemonic power in the Latin Monetary Union.

This addendum develops as follow: Section ADD.2 provides a brief summary of the major characteristics of the LMU, Section ADD.3 depicts the methodology and data used, Section ADD.4 shed light on the results obtained, and Section ADD.5 concludes.

## ADD 1.2 The Latin Monetary Union: a brief overview

The LMU was constituted by the 1865 monetary convention, signed by Belgium, France, Italy and Switzerland (later joined by Greece in 1868). The Union – based on purely intergovernmental methods – aimed to act as a catalyst for the creation of common currency standards, through the use of agreed principles for gold and silver coinage, and exchange of specie. Even if the formation of the LMU was driven not only by economic reasons, but also by the spread of "European" ideals and sentiments of solidarity throughout the continent,[1] and in the 19th century context, the LMU was expected – in light of the economic theory developed at that time (see Einaudi, 2001, for an in-depth investigation on this issue) – to generate different economic effects, i.a.: 1) to reduce speculators' power, which allowed them to profit from the high costs of obtaining information and from low competition in the exchange business; 2) to reduce transportation costs; 3) to help the stabilization of the exchange rate (the LMU agreement implied something similar to a "peg", which entails – for example – positive but milder effects on trade with respect to a "full-scale" currency union, see De Grauwe, 2014, for further details); 4) to create a bimetallic regime capable to compete with (but also to be complementary to) gold and silver standard regimes; 5) to enhance the symbolic value of having coins from different states in circulation (even if with very limited effects, as these coins preserved its own names, images and symbols); 6) to enhance capital exports; 7) to promote and help "a larger process of economic and political integration guided by economic development ad free trade"; 8) to encourage broader political interaction (annual conferences; informal networks);[2] 9)

[1] For more details on this topic, please refer to Luzzatti (1881)

[2] Indeed, during the existence of the LMU, physical reunions were supported in parallel by frequent exchange of letters, memoranda, etc. among the main stakeholders, such as the Ministries of Finance, the Ministries of Foreign Affairs, Directors General of National Central Banks, and other lower-level public officers concerned with the LMU (e.g. conference delegates). Informal networking completed the set of interactions, and was occasionally held in disparate locations. An example of such activities, despite its modest achievements, is the four day travel to Belgium of the Banca Nazionale del Regno d'Italia (BNRI) Director General, Mr. Grillo, around the 29 September 1885 to attend the "Business law conference" held in Antwerp. In that date, he addressed a letter to Mr. Luzzatti (at that time Member of the Parliament in Italy), explaining the risk of seeing the "trip becoming meaningless", as the conference was likely to bring no relevant conclusion on issues concerning exchange law ("diritto cambiario" in the original) and, more importantly, he realised that

to create an institutionalised political relation, whose end may cause widespread retaliations as the "governments of the other states may consider as not polite or even impolitic to break such relations"[3] (Janssen, 1911, p.382: cited in Dubois, 1950, p.19) (Einaudi, 2001; Flandreau, 2000; Flandreau, 2003; De Grauwe, 2014; Bordo and Rockoff, 1996; and Burgoyne et al., 1999).

However, despite theoretical expectations, LMU "effects" have been generally limited. Nonetheless, the LMU had certain positive effects on bilateral trade flows. These effects were concentrated between 1865 (its creation) and 1874 (the year in which the LMU imposed limits on silver coinage and markets lost confidence in the survival of bimetallism, see Flandreau and Oosterlinck, 2012; Meissner, 2005), and between France and the rest of the LMU members, following a hub-and.spokes structure (Timini, forthcoming)

## ADD 1.3 Methodology and data

Until recent time, dynamics within currency unions have been under-investigated, particularly in a historical perspective. Indeed, the literature generated by Rose's seminal contribution (2000) focuses predominantly on trade flows, and assumes homogeneous effects. Egger and Pfaffermayr (2013) constitute an exception, trying to capture the effect of the process of European integration on the variance across intra-EU trade. Nevertheless, geography and time are the only determinants that measure such process, but no economic or political variables are taken into consideration. Within this context, Baldwin (1994, 2006, 2008) illustrates the hypothesis of an integration process which take a "hub-and-spokes" form. In this case, integration will follow asymmetrical and heterogeneous developments, where few (or one) leading nations (the "hub(s)") will be able to interconnect with the rest of the members (the "spokes"), either by generation or attraction. Timini (forthcoming) applies these considerations to the Latin Monetary Union. As summarised by Duvall (1978), dependency theories – a research line in international relations and economics, closely related not only to Marxism, but also to liberal reformism and world system theory (Ferraro, 2008) – also provide a rationale for the existence of heterogeneity (i.e. the "core" and the "periphery"), mainly grounded in

he would have had hard times in succeeding to exchange views and opinions on the "monetary question" with the Belgian LMU delegates, Mr. Pirmez and Mr. Frère-Orban. In the three pages letter to Mr. Luzzatti, Mr. Grillo devotes barely half page to describe the conference developments. Per contra, the remains are dedicated to relate with abundance of details his dialogue with Mr. Pirmez. Mr. Pirmez repeatedly refused to enter in the details of the question, always escaping from talking about substantial issues. On the other hand, Mr. Frère-Orban is not in Brussels in those days, or at least it is what he communicated to Mr. Grillo, jeopardising any attempts to meet. See Archivio Luzzatti, Fondo Luigi Luzzatti; Sezione 1, Serie1, Lettera G, UA 2008.

[3] In French in the original: "les gouvernements des autres Etats considéraient comme peu courtois et même impolitique de rompre ces relations".

social, political, and economic factors. However, this part of the literature is not considered further in the addendum.[4]

To define where the hub starts and the spokes end may be a straightforward exercise for some trade agreements, as it is enough to distinguish the signatory parties and eventual tariff concessions (Gowa and Hicks, 2013). However, the same task becomes more challenging in the case of a currency union. Different approaches have been adopted in the literature, mainly using sovereign bond yields and spreads. For example, Basse (2014) uses cointegration techniques allowing for structural changes on bond yields time series, with the aim of defining the centre and the periphery of the Euro-zone (Economic and Monetary Union, EMU). However, this method would lost its sense in the case of the LMU, as there was no "single currency" to take as a reference, and national bonds were not denominated in gold and silver in parallel. Consequently, it would be impossible to extrapolate the "real" LMU effect.

Nevertheless, Mann (1986) provides a "theory of power" which combines different economic and political realms. Concretely, he created a model, the "IEMP" model, where he explains and categorise the main sources of power in human societies: in his view power can be of ideological, economic, military and political nature. In Table ADD 1.1, I illustrate the components, and their justification.

**Table ADD 1.1: Sources of power, the "IEMP" model explained**

| **Ideological** | **Economic** |
|---|---|
| *It derives "from the human need to find ultimate meaning in life, to share norms and values, and to participate in aesthetic and ritual practices with others"* | *It derives "from the human need to extract, transform, distribute and consume the produce of Nature"* |
| **Military** | **Political** |
| *It is linked with "the social organization of concentrated and lethal violence"* | *It consists in "the centralized and territorial regulation of social life"* |

Source: Author's elaboration on Mann (1986). Quotes are from the same source.

This addendum will analyse each of these four realms, excluding "Ideology" because from a macroeconomic and quantitative perspective would represent a particularly slippery concept, that would require a humongous amount of data to be measured, if such operation is at all possible. Therefore, attention will be

[4] For a variegate perspective of dependency theory and globalization, see Roberts et al. (2015).

predominantly devote to “economics”, as well as “politics” and the “military”. Moreover, in the analysis there is an underlying assumption of power relations as “static”, i.e. countries cannot become a hub if they previously were a spoke, in the short run. To avoid possible endogeneity issues, I focus on the part of the 1860s exactly before the creation of the Latin Monetary Union (1860-1865), and use a five years average to smooth out eventual peaks and troughs.

## ADD 1.4 Results

The results from the quantitative analysis are presented in this section, and divided between two pillars, the “economic” and the “military and political”. The first pillar, “economic”, will also be further divided in three aspects: trade, macroeconomic, and monetary.

### ADD 1.4.1 ECONOMIC POWER

#### - Trade aspects

Pre-LMU trade relations are an obvious candidate for measuring the “hub-ness” of the members. Table ADD 1.2 presents a set of different indicators. Using imports data,[5] I calculated the average number of countries that were trading with the different members-to-be of the LMU, during the period 1860-1865. This indicator can be seen as a measure of the “pervasiveness” of its trade linkages. Its average imports relative to the total world imports highlight the relative importance in the 1860s international economy. The same is calculated for the LMU countries, and for the two nations that the literature define as hegemonic powers at that time, France (which is also part of the LMU) and UK. Following any of the indicators taken into account, France results of outstanding importance in comparison with the rest of other LMU members. In addition, Table ADD 1.3 provides a unique quantitative indicator that measures the “hub-ness” of country j with respect to country i, following Baldwin’s definition (2008). The index ranges from 0 to 100,[6] and relates the shares of exports of country i to country j on its total exports ($s_{ij}^{X}$) with the same share for imports ($s_{ij}^{M}$) as follows: $s_{ij}^{X} * (1 - s_{ij}^{M})$. The higher the index, the more important the role of country j in i’s trade relations (i.e. the more j is a hub for i). The index has already been applied to a historical context by Lampe (2011), assessing the probability of bilateral trade agreement formation. Table 3 indicates that France is the only nation that is an important hub for all the other countries.

**Table ADD 1.2: Trade relations of LMU members (1860-1865)**

[5] In the context of the 19th century, imports data are supposed to be more accurate than exports data. For more details, see Tena (1992).
[6] If expressed in percentage, otherwise the index ranges from 0 to 1.

| | Extensive margins of trade (n) | Top 3 country of origin for imports | Average imports from all countries (million of £) | Average imports as % of total world imports | Imports from future LMU partners (% of the sum of total imports reported) | Imports from France (% over total) | Imports from UK (% over total) |
|---|---|---|---|---|---|---|---|
| **France** | 56 | UK, Belgium, Italy | 93.4 | 11.4 | 19.6 | / | 21.9 |
| **Belgium** | 42 | France, the Netherlands, UK | 26.9 | 3.3 | 22.0 | 21.6 | 15.4 |
| **Switzerland** | n.a. | n.a. | 18.2 | 2.2 | 58.1 | 37.2 | n.a. |
| **Italy** | 17 | France, UK, Austria | 37.2 | 4.5 | 44.7 | 34.2 | 19.3 |
| **Greece** | 13 | UK, Turkey, France | 2.0 | 0.2 | 23.4 | 17.6 | 26.8 |

Source: Author's elaboration on RICardo database and Federico and Tena (2016).
Note: Values are average for the years 1860-1865. Extensive margins of trade are the number of country of origin for imports reported in RICardo database. I am aware that this number can depend on the quality of the original source that RICardo's creators used to retrieve the information. Total world imports are based on Federico and Tena (2016).

**Table ADD 1.3: Badlwin's hub-ness measure (1860-1865)**

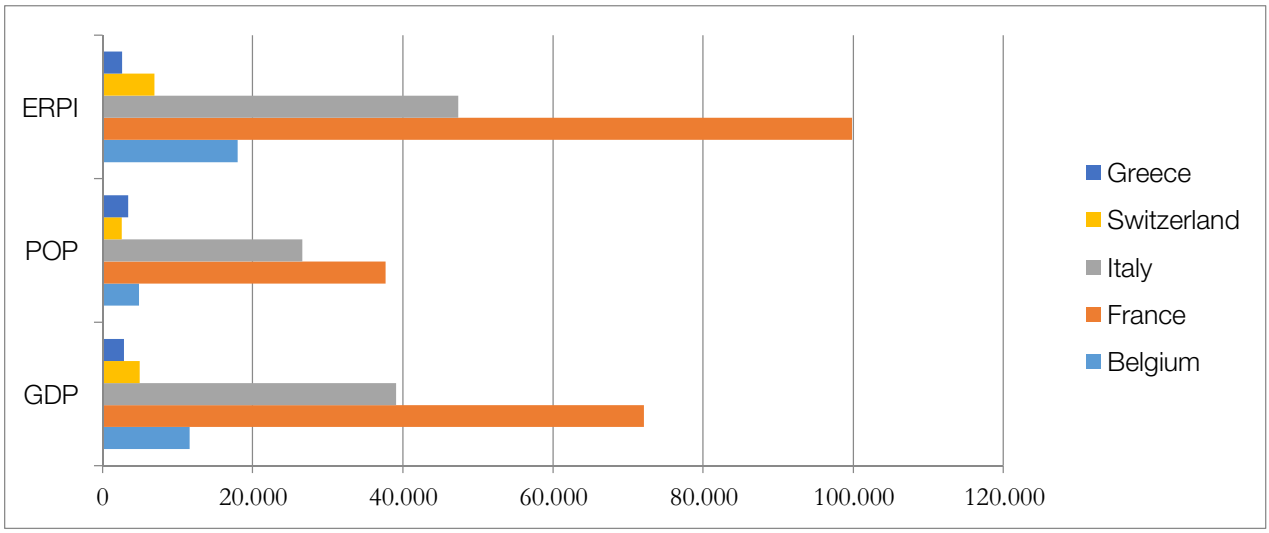
| | France | Belgium | Switzerland | Italy | Greece |
|---|---|---|---|---|---|
| **France** | | 6.9 | 6.2 | 7.5 | 0.4 |
| **Belgium** | 30.5 | | 2.1 | 2.0 | 0.1 |
| **Switzerland** | 9.8 | 0.9 | | 13.2 | n.a. |
| **Italy** | 30.4 | 0.4 | 14.5 | | 0.5 |
| **Greece** | 12.7 | 0.3 | n.a. | 1.5 | |

Source: Author's elaboration
Note: The hub-ness value expresses the dependency of country in line x on country on column y. Values are average
for the years 1860-1865 and are expressed in percentage.

**- Macroeconomic aspects**

International relations literature, i.a Moravcsik (2010), proposes two main indicators to measure "economic" power at the macroeconomic level in a XIX century framework: aggregate population and the aggregate GDP. In a historical context, it is possible to assume a linear relationship among the indicators and the "economic power" without oversimplifying the reality. In contemporary times, where technology and productivity play a much bigger role, both aggregate and per capita GDP would matter. For this reason, I perform a robustness check with the Moravcsik (2016) "Economic Relative Power Index" (ERPI), which is a non-linear combination of the two aforementioned indicators (i.e. GDP and GDP per capita).[7]

**Figure ADD.1.1: Economic power within the LMU (1861-1865)**




Source: GDP (in million 1990 International Geary-Khamis dollars) and POP (in thousands of people) Maddison Project's database. ERPI: Author's elaboration on Maddison Project's database, scale adapted to the needs of the graph.

Figure ADD.1.1 summarises the three indicators discussed above, namely GDP, population, and the ERPI. These measures indicate Belgium Switzerland and Greece as the spokes in macroeconomic terms, whereas the hub seems to be incarnated by France. Italy has an intermediate position.

**- Monetary aspects**

As Eichengreen's (2008, p.1) words forcefully describe: "It is impossible to understand the operation of the international economy without also understanding its monetary system". The monetary and – broadly speaking – financial structure are intrinsically interconnected with the real economy that are supposed to serve. As follow, the performance of the monetary system will help shaping the relative power, and positioning in the international economic arena. This means that, in presence of a dysfunctional monetary system, it is expected to be observed a scarce ability

[7] $ERPI = GDP * \sqrt{GDPpc}$ , where GDP is the level of Gross Domestic Product and GDPpc the level of Gross Domestic Product per capita.

of exerting influence and power on other international actors.[8] Research dealing with monetary geography and related issues, which enters the details of the monetary networks tying European (and non-) countries, is very limited. Few exceptions approached such issue quantitatively, and provided a precise and analytical description. Two studies span from the pre-Industrial Revolution period (Flandreau et al., 2009), when some of the national states under analysis did not exist yet, to the end of 19th and the beginning of the 20th century (Flandreau and Jobst, 2005). Those two studies do not overlap, and indeed leave a gap of more than a hundred years. Despite the lack of data for the period of interest, it is possible to elaborate a "second-best" strategy, using Flandreau and Jobst (2005) as a proxy even if it means to rely on a posteriori analysis. Such choice is motivated by the stability over time of the results of the authors, i.e. if a country was included in a certain group in 1890, it has very high probability to be in the same group in 1910. In case of LMU countries, the probability is equal to one, as they never switch from one group to another. The authors compute with block-modelling techniques[9] network estimations for 1890, 1900 and 1910, dividing countries in 3 groups,[10] calling them "key", "intermediate", and "peripheral". Namely, France is included among key countries; Belgium, Switzerland and Italy are found among intermediates, and Greece pertains to peripheral. France, therefore, appears as the monetary/financial "hub" of the Union, and the rest as LMU "spokes".

## ADD 1.4.2 MILITARY AND POLITICAL POWER

What was the ability of the different members to exert political pressures? This question refer to the capability of certain members of using power efficiently and effectively – along the lines of the decision-making process of the Union – with the aim of shaping the final outcome of the negotiations in its own favour. To a certain extent, political power can also boost bilateral relations, through the respective diplomatic network, which may play a role in trade promotion (Rose, 2007). Mitchener and Weidenmier (2008) acknowledge the validity of this argument, i.e. that politics and political relations matter for trade, even in the 19th century context. In other words, this would mean that a range of political forces may be able to influence trade dynamics, giving different "visibility" to each of the LMU members. Figure ADD.1.2 reports the results of the relevant indicators contained in the "National Material Capabilities" (Singer et al., 1972) and the "Diplomatic Exchange" (Bayer, 2006) datasets, which are subsets of the "Correlates of War" database. The variables included collect information on diplomatic representation (wDIPL and

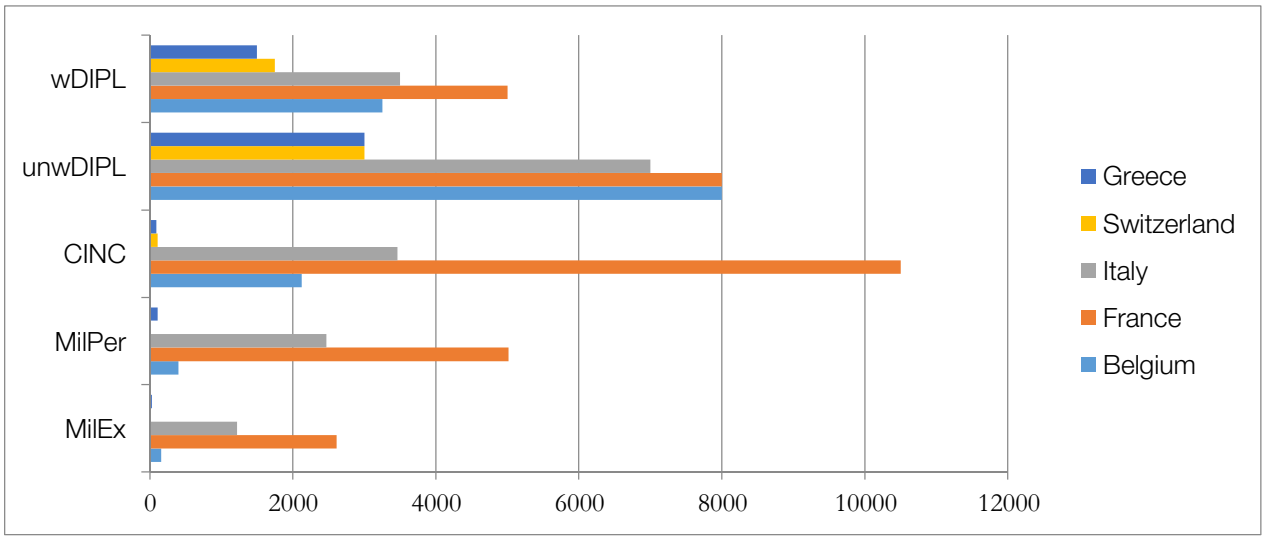
[8] For a thorough description of the global (and European) financial network and its functioning see Denzel (2010).

[9] For more details, Flandreau and Jobst suggest to refer to T.A.B. Snijders and K. Nowicki (2001), *Manual for BLOCKS version 1.5*, Groningen.

[10] The number of groups is also determined by bloc-modelling techniques, relying on Gibbs simulations.

unwDIPL), military personnel (MilPer) and expenditure (MilEx), and a Composite Index of National Capability (CINC).

**Figure ADD.1.2: Military and Political power within the LMU (1861-1865)**




Source: Author's elaboration on CoW database, scale adapted to the needs of the graph.
Note: MilEx = military expenditure; MilPer = military personnel; CINC = Composite Index of National Capability; unwDIPL = number of diplomatic representations with other LMU members, no weight attached to different levels (chargé d'affaires; minister; ambassador); wDIPL = weight attached (0.25 to chargé d'affaires; 0.5 to minister; 1 to ambassador).

Again, France stands as the "leader" of the group, with Belgium, Switzerland, and Greece fairly distant from its results. The position of Italy is in the middle of this two groups. A certain degree of uncertainty in both its economic and political power classification requires support from qualitative data, to complement the quantitative analysis, through the use of primary sources, aiming to provide a clearer picture.

## ADD 1.4.3 QUALITATIVE DATA: FRANCE AND ITALY

The French power in international relations – and particularly on monetary issues – at that time is visible. In the case of the LMU, the rapid choice of Paris as the place designated for holding LMU periodical conference may exemplify the firm commitment of the French for leading the monetary debate. The French approach emerges both French and non-French literature. Cernuschi's book "Monetary diplomacy in 1878" is a great example of the former, and may reinforce the vision of France as the hub:

> "Switzerland and Belgium [...] [are] two small states whose necessity has always subordinated and naturally subordinates to the monetary system of France" (Cernuschi, 1878, p.39)

Italian diplomatic sources,[11] i.a., also show that its government strictly followed the French political stance. A private manuscript found in the Luzzatti Archive (Venice)[12] recites the following:

> "The Italian Government, aiming at preserving the Latin Union, and hoping to reach it[s objective], even with harsh discrepancies on pivotal questions, do not think to separate its position from the one of France on this particular motion.
>
> In the case that France declares that instead of allowing a one year prorogation asked by Belgium, will prefer to face the break of negotiations, with its regret Italy will subordinate its decisions on that point of view." [13]
>
> (undated, presumably around 1885, Luzzatti)

Another diplomatic document, sent from Luzzatti (negotiator at the LMU) to Lacava (Ministry of Finance) highlights the French pivotal role during negotiations and other political events, depicting a *de facto* hub-and-spokes relational framework:

> "So the question that separated, in this way, the Italian administration from the French one is solved [...] Primarily the French Government that conduces the same negotiations with Belgium, Switzerland, and Greece desires not to give public notice before the agreement will be finalised with all the other Governments of the Latin League."[14]

To this consideration, in the same letter Luzzatti adds a part of his conversation with the French Finance Minister Caillaux, where he states the following:

[11] Archivio Luzzatti Venice (Fondo: Luigi Luzzatti; Sezione 2, Ministero del tesoro (e interim delle finanze), UA 165 & UA 203 & UA 204 & UA 219).

[12] Luigi Luzzatti was a pivotal figure in the Italian politics, as it worked almost for half century within the Italian institutions. For more details on the Luzzatti Archive, and the role of Luzzatti in the Italian politics, see Timini (forthcoming), Appendix A.1.

[13] In French in the original "Mais le Gouvernement Italien, visant au but suprême de la conservation de l'Union Latine et ayant l'espoir de l'atteindre, quoiqu'il y ait encore des dissentiments graves sur des points capitaux, ne croit pas de se séparer de la France dans cette motion particulière. Au cas où la France allait déclarer que plutôt de consentir à la prorogation d'une année, demandé par la Belgique, elle affronterait la rupture de la négociation, l'Italie devrait à son regret subordonner ses décisions à ce point de vue."

[14] In Italian in the original: "Quindi la questione che divideva, in questa materia, l'Amministrazione italiana e quella francese è risoluta. […] Primieramente il Governo francese che conduce le stesse negoziazioni col Belgio, colla Svizzera e colla Grecia desidera che non se ne dia pubblica notizia prima che l'accordo sia stretto con tutti gli altri Governi della Lega latina."

> "I noted laughing that what Italy stipulated with France, [Italy] also intended to be agreed upon with Switzerland through [the agency of] France"[15]
>
> (Luzzatti, approx. 1907-1908)

Further evidence of the marginality of the relationships among peripheral members of the Union, may be found, again, at the Luzzatti Archive. In particular, two letters provide anecdotal evidence of the LMU failure in enhancing peripheral relations and reciprocal interest. The exchange of letters between the two Italian representatives to the LMU in December 1885, Mr. Luzzatti and Mr. Ellena is an epic example of extraordinary frankness. Using very confidential manners,[16] the latter evokes to the former the need for Italy to concentrate on its own interests and to avoid considering the ones of the other members. Particularly referring to the position of Belgium (exceptionally troubled at that time), Mr. Ellena states:

> "Materially speaking, we don't give a damn about the presence of Belgium in the Union"[17]
>
> (Ellena, 1885)

brilliantly summarising, to explain it in a very considerate way, the total absence of interest in Italian-Belgian relations of the Italian negotiators. This attitude may reasonably be expanded to the Italian political and administrative spheres which Ellena and Luzzatti were asked to represent.

However, this apathy is proved to be bilateral by a letter Mr. Grillo addresses to Luzzatti only few weeks before Ellena. With the excuse of a business law congress in Antwerp, Grillo travels to Belgium with the objective of meeting important Belgian personalities, which however refuse or avoid to either discuss with him relevant topics of monetary policy or even to consider his request to gather together.[18]

Table ADD 1.4 provides a recapitulation of the results of the hub-and-spokes categorization for LMU members in each of the three dimensions under assessment.

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[15] In Italian in the original: "Io notai sorridendo che quanto l'Italia stipulava con la Francia lo intendeva concordato anche con la Svizzera per mezzo della Francia"

[16] As an examples, Ellena addresses Luzzatti using "Caro Gigi" (i.e. "Dear Gigi" which in Italian highlights a much higher degree of confidence with respect to an English speaking context; in addition he uses Luzzatti's nickname), and he closes the letter with the quite unusual "scrivimi e ama" (i.e. "write me and love").

[17] In Italian in the original: "A noi materialmente parlando, la presenza del Belgio nell'Unione non importa un cavolo". Archivio Luzzatti Venice (Fondo: Luigi Luzzatti; Sezione 2, Ministero del tesoro (e interim delle finanze), UA 219).

[18] Archivio Luzzatti Venice (Fondo: Luigi Luzzatti; Sezione 1, Serie1, Lettera G, UA 2008).

**Table ADD 1.4: Hub and spokes categorization**

| | Economic Power | | | Military and Political power | Qualitative data | Overall Evaluation |
|---|---|---|---|---|---|---|
| | **Trade** | **Macroeconomic** | **Monetary** | | | |
| **France** | Hub | Hub | Hub | Hub | Hub | HUB |
| **Belgium** | Spoke | Spoke | Spoke | Spoke | Spoke | SPOKE |
| **Switzerland** | Spoke | Spoke | Spoke | Spoke | Spoke | SPOKE |
| **Italy** | Spoke | Intermediate or Spoke (?) | Spoke | Intermediate or Spoke (?) | Spoke | SPOKE |
| **Greece** | Spoke | Spoke | Spoke | Spoke | Spoke | SPOKE |

Source: Author's elaboration

## ADD 1.5 Conclusions

This addendum revises from a quantitative perspective the conventional view in economic history, based on qualitative evidence only, which describes the LMU, in general, as an imperfect currency union, where member countries had different influence in shaping its functioning, and France, in particular, as a great-power hub, i.e. the "hegemonic power" within the Union (Einaudi, 2001; Timini, forthcoming). After having elaborated a formal quantitative test based on Baldwin's approach (1994) and Mann's theory (1986) – with qualitative extensions, based on new archival evidence, when necessary – I confirm this view.

Indeed, the set of indicators proposed in the analysis points towards a unambiguous categorization – from a quantitative perspective – of the LMU member states where, following Baldwin's lexicon, France is identified as the "hub" and the rest of the members are the "spokes". To a certain extent, Italy is an exception, at least in the aspect related to macroeconomics, politics and the military, where the selected indicators document an "intermediate" position. Therefore, for this specific case, I enhance the quantitative with a parallel qualitative analysis based on new archival research using Italian diplomatic sources conserved at the Luzzatti Archive. The qualitative analysis not only confirms that the Italian government strictly followed the French political stance, but also provides further evidence of the marginality of the relationships among peripheral members of the Union.

The "enhanced" quantitative test is not an immutable reference for an assessment of power structure and power distribution within a currency union – even in the case of an incomplete one such as it was the LMU. The necessity of a stricter methodology and its operationalization remains, and the test elaborated in this addendum should rather be interpreted as a first step of an incremental process.

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# CHAPTER 2

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# The Margins of Trade: Market Entry and Sector Spillovers, the Case of Italy (1862-1913)

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Jacopo Timini*

**Abstract**

Between its Unification and WWI, Italy faced a period of increasing participation in the international economy. The growth of Italian exports was gradual, and alternately promoted by its intensive and extensive margins. In this chapter, using a disaggregated database at country-product level, I first construct the intensive (average export per product) and extensive (number of products) margins of trade (for Italian imports and exports) and, second, within a quasi-gravity model framework, I estimate the drivers of market entry for Italian exports (1862-1913), with particular attention to the presence of eventual sector spillover effects. I find that the presence of "similar" exported products increased the probability of entry in the destination market (export spillovers), even if with diminishing marginal effects, potentially linked to a "saturation"/"congestion" of the market. Equally, I find that the higher the imports' growth rate for a specific product, the more likely it was to be internationalised by Italian exporters (import spillovers).

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## 2.1 Introduction

During the first wave of globalization, which began in the early nineteenth century and ended with the First World War (O' Rourke and Williamson, 2002), the world saw a spectacular decline in trade costs paralleled by a stable increase in world trade (Federico and Tena, 2016; Dedinger and Girard, 2017) and a remarkable economic expansion (Jacks et al., 2010). Whereas transportation costs faced a steady decline, liberalizing trade policy (i.e. policies promoting international market integration such, e.g., tariff cuts) experienced changing fortunes, with national policy makers alternating the promotion of protectionism with "free trade epidemic[s]" (Lazer, 1999; cited in Lampe, 2011). By large, Italian developments went de jure in line with the wider European dimension: Italy alternated liberal with protectionist trade policies. However, de facto the latter group have been described as having little – if any – effect on both Italian growth and openness, which were thriving at the turn of the 20th century. As remarked by Felice and Vecchi (2015), in line with Federico and O'Rourke (2001) and Federico and Tena (1998), Italian protectionism was "more apparent than real" (p.516). In this context, it is interesting to delve into the various components of the Italian external sector.

Using disaggregated data I first construct the extensive (number of products) and intensive (average export per product) margins of trade (for both exports and imports), and second, I perform a quantitative assessment of market entry decisions at product level, taking into account eventual spillover effects. As I have product (and not firm) level data, I have to follow Huberman et al. (2017), in its key assumption: the identification of firms with products, which means, in other words, to assume that any exported product constitutes "a variety produced by a representative firm" (Huberman et al., 2017, p.11). In this framework, I exploit an emerging strand of product-level analysis of exports in historical perspective. Using a quasi-gravity model capturing trade costs, market and product specific forces, I test the importance of export and import spillovers in determining the entry of Italian products in ten different countries (in Europe, North and South America). Export spillovers had positive effects on market entry, but this relationship followed an inverted-U shape, possibly related to a market "saturation"/"congestion" effect. Import spillovers are positive, due to either direct (reduction in production costs) or indirect (technology/productivity) effects, or both.

The rest of the chapter is organised as follow: Section 2.2 provides a brief literature review, connecting international trade theory with market entry and potential spillovers; Section 2.3 describes the external sector of the Italian economy within its historical context, and provides the estimations of the intensive and extensive margins of trade; Section 2.4 explains the empirical strategy and data sources; Section 2.5 discusses the results; and Section 2.6 concludes.

## 2.2 Literature review

Within the international trade literature, market entry represents an increasingly important segment. For long time, trade theory – based on Krugman seminal contribution (1980) – assumed firm homogeneity and treated transportation costs as variable only (as opposed to fixed costs), focussing consequently on intensive margins only. Krugman-based models explained bilateral trade flows in terms of consumers' preferences for variety ("love-of-variety"), which would overcome obstacles posed by trade barriers and boost trade in differentiated goods (even between identical countries). However, such models did not provide an explanation for the existence of "zeroes" in bilateral trade, a very common feature of trade databases – no matter if historical or contemporary, country or product-level – practically assuming a random distribution. Only recently there has been a growing consensus among economists that zero trade in bilateral flows are not arbitrarily distributed. Such a change in the interpretative analysis had implications both at the methodological level (Silva and Tenreyro, 2006) and on the underlying theory. The introduction of firm heterogeneity – in terms of productivity – and fixed costs as part of transportation costs for trade activities (Melitz. 2003; Bernard et al., 2003; Helpman et al., 2004; Chaney, 2008) implied the discovery of a new dimension of exports: exports respond to a variation in trade costs not only in terms of size (either quantity or value, "intensive margins"), but also in terms of variety (the basket of products exported, "extensive margins"). This innovation originated a new strand of literature analysing the margins of trade and the determinants of market entry. This chapter builds on the literature that connects entry in foreign markets (i.e. whether or not a product is exported to certain destinations) with export and import "spillovers".

There are various channels explaining the existence of spillovers: Banerjee (1992) formalises a model where every individual (either a person or an entity) internalises, the choices made by its peers when optimising its decision-making function, recalling human ecology theories (Hawley, 1950), where functional relationships play an important role in influencing human behaviours. The result is what he calls a "herd behaviour", where people mimic others' actions, instead of using their own information, possibly considering it unsatisfactory, insufficient, inadequate, expecting peers' information to be superior, or simply interpreting the commercial viability of certain products in certain foreign markets as a "signal" of the market potential for similar products. In the international management and sociology literature, this concept has been adapted by Di Maggio and Powell (1983). They argued that the institutional environment of a particular field in which organizations act tend to push them towards becoming increasingly similar within that field. They defined the combination of these forces as "institutional isomorphism". Additionally, both "old" trade models – underlining the importance of

search and networks in promoting international trade (Rauch and Watson, 2004) – and "new" theories – focusing on the role played by a specific technology able to exploit economies of scale and/scope in exports (Ahn et al., 2011; Bernard et al., 2011; Felbermayr and Jung, 2011; Crozet et al., 2013; Cheptea et al., 2015; Ito et al., 2017; Akerman, 2018; Emlinger and Poncet, 2018) – make the case for trade intermediaries to serve as facilitators of international trade, boosting exports of "similar" products, either in terms of capability of enter intermediaries' networks, or to exploit intermediaries' economies of scale, possibly specializing in a specific sector. However, most of the literature uses an empirical approach and focuses on the former (see Blomström and Kokko, 1998), using detailed firm-level data: Greenaway et al. (2004) find that the choice of exporting made by domestic firms is positively influenced by the presence of multinational enterprises in their area; Kinuthia (2017) extends the validity of the findings comparing two developing economies. Greenaway and Kneller (2008) detect that both geographical and sector-level agglomeration is positive for the probability of exporting; Koenig et al. (2010) describe that export spillovers exist for French firms (1998-2003) but only when calculated at the extensive (and not at the intensive) margin; Muñoz-Sepulveda and Rodriguez (2015), using a dataset of Spanish firms from a 10 years period, test for eventual spillovers generated by previous export activities in similar countries or industry, finding evidence for these effects to exist and be positive, even if relatively small. Additionally, Castillo-Giménez et al. (2011) use a dataset with detailed information on firm location to identify whether firms' proximity affects information-related sunk costs, and therefore the patterns of market entry. Choquette and Meinen (2015) decide to open the "black-box" of export spillovers, investigating if exporting firms influence non-exporting firms, and finding positive effects through the channels of movement of labour and industry-wide linkages. Mion et al. (2017) focus on managers' mobility instead as a vector for spillovers. However, as there are no firm-level data available, these different causes of spillover effects are hard – not to say impossible – to disentangle in this chapter. Nevertheless, it is possible to prove, through secondary sources, that many of these "spillover determinants" were at work during the first globalization in Italy, making therefore the case for gauging these effects at the product level:

Trade intermediaries → the presence in Italy of trade intermediaries is well documented (Lupo, 1987; Battaglia, 2003; Stanziani, 2010). They played an important role in the primary sector, where Bernard (2010) argues intermediaries would have more lever, and possibly in helping small and medium enterprises (Madsen et al., 2012), which were of non-negligible importance in Italy (Colli and Rose, 1999; Colli et al., 2003);

Labour/human capital mobility → using A'Hearn's words (1998, p. 739), "[n]umerous examples can be culled from the experiences of Italian textile industrialists who undertook research trips abroad, brought in English, Swiss, or

Belgian overseers and mechanics, and arranged apprenticeships for their sons at textile mills and machine builders abroad";

Multinational enterprises → they had an increasing importance, although limited to certain sectors in the Italian economy, particularly during the Giolittian era. Possibly, the main example is the one of Montecatini, a conglomerate mainly acting in the mining and chemical sectors, which history has been reconstructed in detail by Amatori and Bezza (1990), Zamagni (1990) and Perugini (2014) (see Appendix B.2 for a graphical representation of Montecatini's involvement in different products).

All the channels suggested here imply reductions of transaction costs and, more in general, of trade costs, therefore being in line with the theoretical mechanisms and empirical findings described in Jacks et al. (2010), Huberman et al. (2017), and Meissner and Tang (2017), where a reduction in trade costs is associated to an increase in the margins of exports.

On the other hand, this chapter specifically connects also with the literature on import spillovers, as it aims to understand whether higher imports' growth rate for a specific product at time t-1 will affect the probability of being exported at time t. An important part of the literature studied the interconnection of imports (and import competition, see Autor et al., 2016) with productivity (Aghion et al., 2005; Amiti and Konings, 2007). However, Bas and Strauss-Khan (2013) focus on the interconnections between imported inputs and exports, emphasizing not only the "indirect effect" through productivity or technology, but also the "direct effect" through a reduction in production costs. However, if imported products are not used as inputs in the domestic production process, but compete with domestic products in the market instead, the effects of increased imports on exports may be different: they can be positive, if the firm (product) strive for survival will oblige domestic (and less competitive) firms (products) to find compatible foreign markets, characterised by lower productivity. Additionally, import competition may have positive effects through an indirect channel, stimulating productivity and innovation as in a model à la Aghion et al. (2005), where firms decide to face the increase in foreign competition investing more in innovation, increasing productivity and overcoming fixed costs related to export activities (similarly to Bas and Strauss-Khan, 2013), therefore opening a wider set of markets, which were previously unaffordable. Negative effects may be present if an increase in imports detect an expansion in domestic demand that may absorb a higher proportion of domestic production, reducing export incentives. However, the latter issue is controlled by time fixed effects in the empirical analysis. Furthermore, negative effects may also be related to a Schumpeterian process of creative destruction, where an increase in imports identifies an increase in competition, eventually squeezing out of the

market less productive firms. However, if existing at all, this last channel is expected to be relatively small, as less productive firms do not have a large contribution in the exporting sector.

In historical perspective the literature is in its inception phase, as disaggregated databases had not been available until very recently. Differently from contemporary literature, data do not include firm-level characteristics, but offer product-level insights and have only been collected for a very limited number of countries: Belgium (Huberman et al., 2017), France (Becuwe et al., 2015), Italy (imports and exports, Bankit-FTV,[50] Federico et al., 2012), Japan (Meissner and Tang, 2017), Spain (Betrán and Huberman, 2016), Germany (Hungerland, 2018), Mexico (Kuntz-Ficker and Tena-Junguito, 2018), Brazil (Absell and Tena-Junguito, 2018), Argentina (Rayes, 2018), and Honduras (Ledezma Díaz, 2018) . However, only Meissner and Tang (2017) focuses on market entry. They exploit a new database at product (SITC 3 digit) and country level, with intervals of five (reference) years, between 1880 and 1910, they identify trade costs and (destination market) demand factors as main determinants of market entry.[51]

Introducing in the economic history literature export and import spillovers as possible determinants of market entry (i.e. new products exported to new countries), I aim to exploit the comprehensive and granular nature of the Bankit-FTV database (see Section 2.4.2 for more details). Additionally, the availability of standardise data for both imports and exports provide the unique opportunity to test empirically the existence of different types of spillovers. To my knowledge, it is the first time that import and export data are linked and exploited simultaneously to understand the drivers of market entry.

## 2.3 Historical context

### 2.3.1 Italy: the structure of trade and the (debated) effects on economic growth

Since Federico (1996) defined it as a “little known success story”, the role of Italy within the world economy during the first globalization wave has been largely revisited. Indeed, early contributions focused on internal factors as potential engines of economic growth, considering Italy in complete isolation from the external

[50] The collection of disaggregated data on Italian trade statistics was an initiative of the Bank of Italy, which was in charge of data collection, under the scientific direction of G. Federico, G. Tattara and M. Vasta. Following Federico et al. (2012), I refer to the authors of the project with the acronym “Bankit-FTV”.

[51] In a different fashion, outside the international trade literature, Greve (2000) tests market entry decisions in the Japanese banking sector at the beginning of the 20th century, and Ehrardt and Nowak (2011), focusing on institutional determinants of market exit for listed stock corporations in post-WWII Germany.

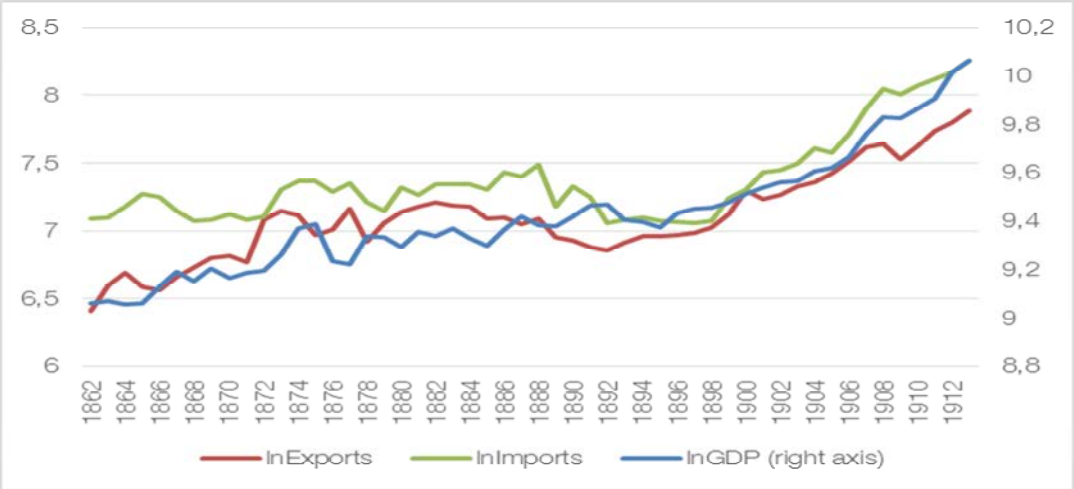
environment (e.g. Romeo, 1959; Sereni, 1966). Since Gerschenkron (1962), however, the importance of international factors in shaping Italian economic growth emerged rapidly. Indeed, the role of trade policy has been widely discussed, to understand why, how, and how much Italy sheltered its internal market from the international economy, i.e. the causes and levels of protection. Initially, trade policy was regarded as a positive factor for Italian growth (Zamagni, 1978).

However, such interpretation has been gradually moderated towards positions in line with more mixed views, where trade policy effects are heterogeneous (Coppa, 1970; Fenoltea, 1993; Ciccarelli and Nuvolari, 2015) or practically irrelevant (Federico and O'Rourke, 2001; Federico and Tena, 2002), and, in any case, not responding to "any clear strategy for industrialization" (Federico and Vasta, 2015). The debate has been largely similar for exports: they have been initially considered as a strong driver of growth and the development process of the Italian peninsula since its Unification (Bonelli, 1978). Toniolo (1988) argued that the lack of data was limiting the validation of Bonelli's argument. Since then, data availability increased exponentially thanks to the efforts that various scholars dedicated to the reconstruction of Italian economic history figures (see i.a. Felice and Vecchi, 2015; Felice and Carreras, 2012; Toniolo, 2013; Fenoltea, 2010; Ciccarelli, 2015; Daniele and Malanima, 2017).

Exploiting the disaggregated information provided in the Bankit-FTV database, Federico and Wolf (2012) analyse the Italian export course in the long run, highlighting "a strong coincidence between periods of economic growth […] and of good export performance" (p.20), and particularly for the "boom giolittiano" (1895-1913; Cohen and Federico, 2001) (see Figure 2.1). Even if the authors argue that conventional wisdom support the view that openness was "beneficial" for Italy, they however do not claim any causality. Pistoresi and Rinaldi (2012), using aggregate data, found that export growth did not Granger-caused GDP growth, establishing a unidirectional causal relationship only from import growth to GDP growth. In this context, the analysis of trade margins may provide useful insights to understand the product-level dynamics of Italian internationalization, which revived the debate among economic historians for decades.

During this period, Italy contribution to world trade remained almost constant, ranging around 3% of world total trade. That means, as world trade was experiencing a phase of strong growth (Dedinger and Girard, 2017), that Italian trade was increasing approximately in line with global trade.

**Figure 2.1: Imports, Exports and GDP, Italy 1862-1913**




Sources: Imports&Exports Toniolo, GDP Jorda-Schularick-Taylor Macrohistory Database

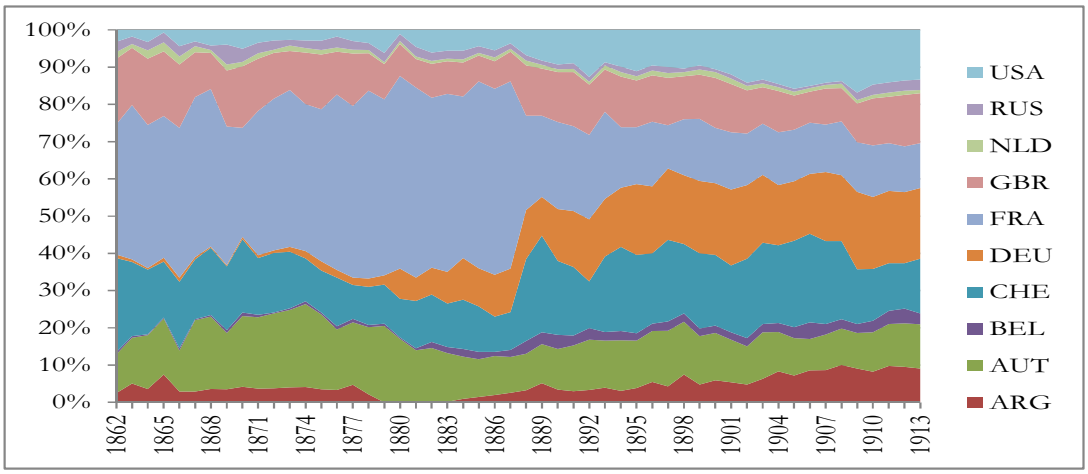
However, the increase in the availability of public sources for bilateral and product-level trade flows (Bankit-FTV database, RICardo database) allows to analyse trade by country and product. On the export side, Figure 2.2 shows that Italy, since Unification, had large and increasing commercial relationship with France, until the 1880s tariff war, which halved exports to that destination.[52] On the other side, Figure 2.2 shows positive trends – in relative terms – for exports to Germany, Switzerland, US and – only to a certain extent – Argentina. In particular, the first two are those that seem to compensate for the French market tariff-related shrinkage. Product-level analysis also confirms that Italy was and remained primarily an agricultural economy, and consequently its exports where composed predominantly by primary products,[53] even if their importance was decreasing from more than 82% of total exports in Bankit-FTV in 1862, to approximately 61% in 1913. Complementarily, manufacturing products grew from 17% in 1862, to almost 40% in 1913. Using product-level data (see Figure 2.3), it is possible to differentiate further within both agricultural and manufacturing goods. The former experienced a

[52] The late 1870s and the 1880s were years of protectionist resurgences of protectionism. Italy was no exception and revised its overall trade policy twice, first in 1878, and later in 1887 with a "new 1887 tariff", which was the results of the convergence of industrialists, landowners and the Treasury. To compensate these increases and to control international complains, Italy negotiated a set of bilateral treaties. However, the situation with France turn out to be peculiar. In December 1886, Italy denounced the 1881 bilateral treaty, with the aim of reaching a new – more favourable – agreement. Nevertheless, for both economic and political reasons, negotiations fell apart in February 1888. A new trade treaty, which gained emphatic titles on the first pages of international newspapers (e.g. Chicago Sunday Tribune, the Spectator), was signed only a decade after, in November 1898. For more details, see De Cecco and Pedone (1995), Asakura (2003), House of Commons (1908).

[53] I follow Federico et al. (2012) and Federico and Wolf (2012) defining primary products as those products in the SITC 1-digit category 0 to 4 and in SITC 4-digit category 6511 (silk), and manufacturing products those products in the SITC 1-digit category 5 to 9, excluding silk (6511). Indeed, even if silk has been classified in SITC 6 (together with other industrial yarns) in the Bankit-FTV database, the bulk of its value derived from the raw material (an agricultural product), and its processing operations (Federico and Wolf, 2012). However, this consideration only matters for estimating the relative importance of the agricultural and manufacturing sectors.

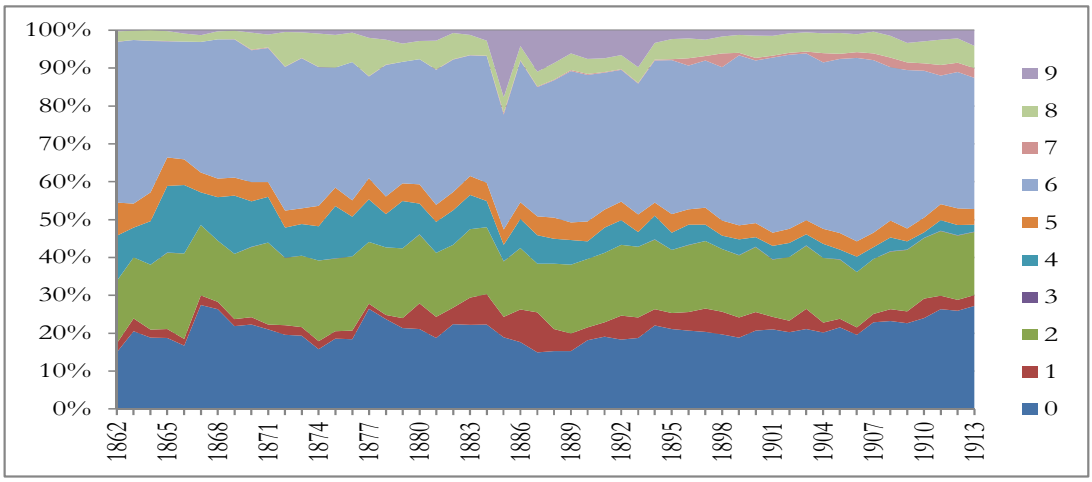
relative increase in primary products, food and live animals (0) and beverages and tobacco (1), whereas crude materials (2), and animal and vegetable oils (4) saw a reduction in their shares. Exports of mineral fuels, lubricants and related materials (3) were minimal until 1903 (0.1%), and experienced an exponential increase afterwards, however remaining in overall low levels (0.3% in 1913). Within the set of manufacturing products, manufactured goods (6), machinery and transport equipment (7), and miscellaneous manufactured products became more important in relative terms.

**Figure 2.2: Italian exports, by country of destination, share of total exports, 1862-1913**




Source: Author's elaboration on Bankit-FTV

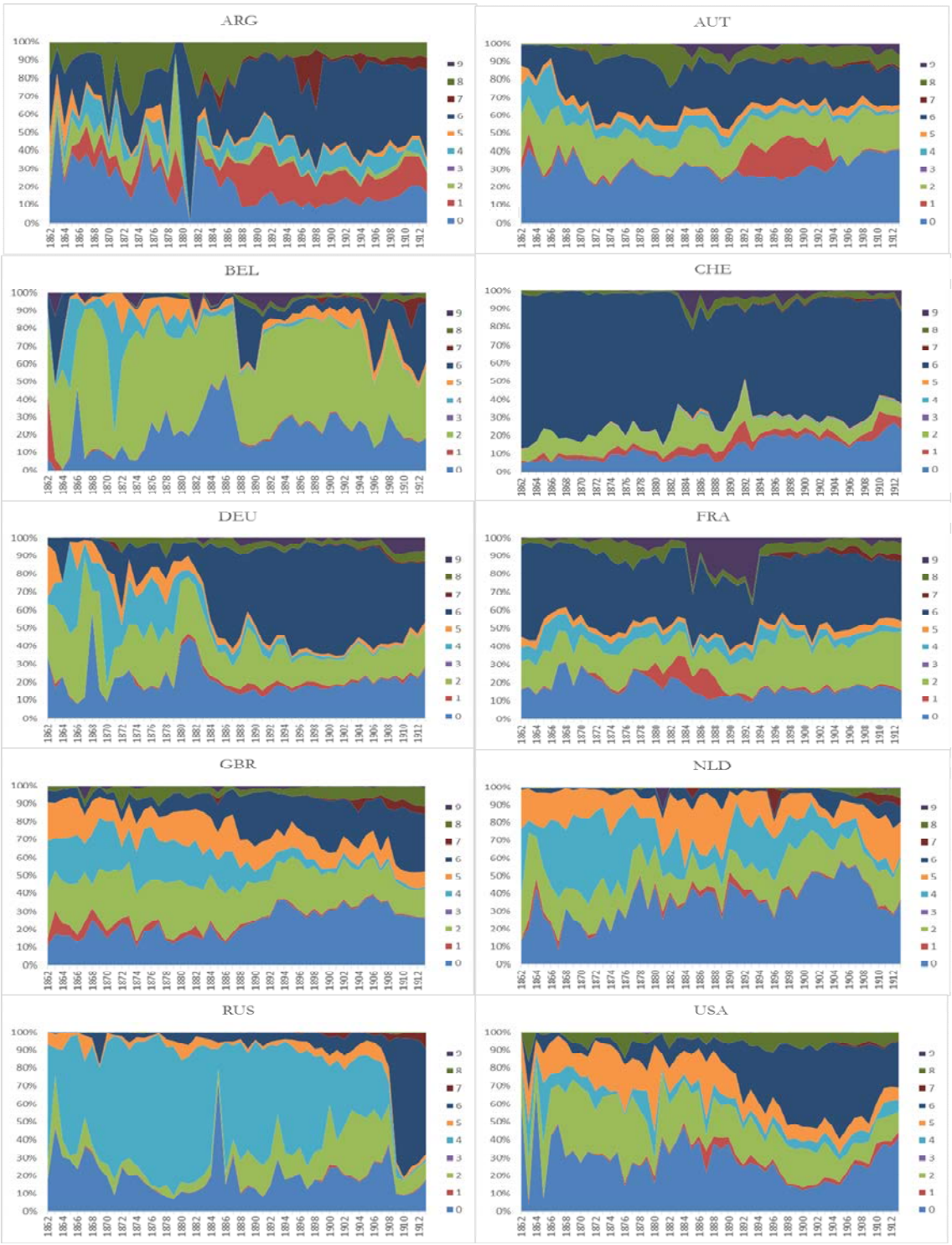
**Figure 2.3: Italian exports, by sector (SITC 1-digit category), share of total exports, 1862-1913**




Source: Author's elaboration on Bankit-FTV

When combining the two dimensions (country-product) the picture is more variegate. As Figure 2.4 shows, there are important differences across product and countries. For example, even if the category "food and live animals" had an important role almost anywhere, Italian exports related to this sector were quite heterogeneous ranging from 10 to almost 40% of total exports.

**Figure 2.4 Italian exports, by country of destination and sector (SITC 1-digit category, 1862-1913)**

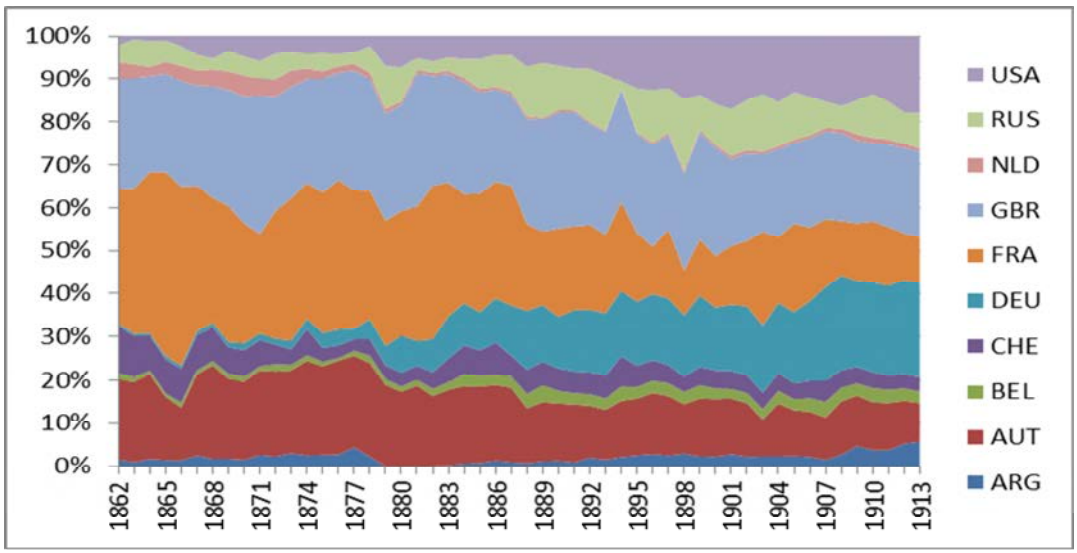



Source: Author's elaboration on Bankit-FTV

On the import side, Figure 2.5 shows that Italy, had large commercial relationship with Great Britain, France, Germany, as well as US and Austria. In particular, German and US increase in imports share goes in parallel with the French decline. Using product-level data as for exports (see Figure 2.6), it is possible to depict the evolution of imports by sector: food and live animals (0) and

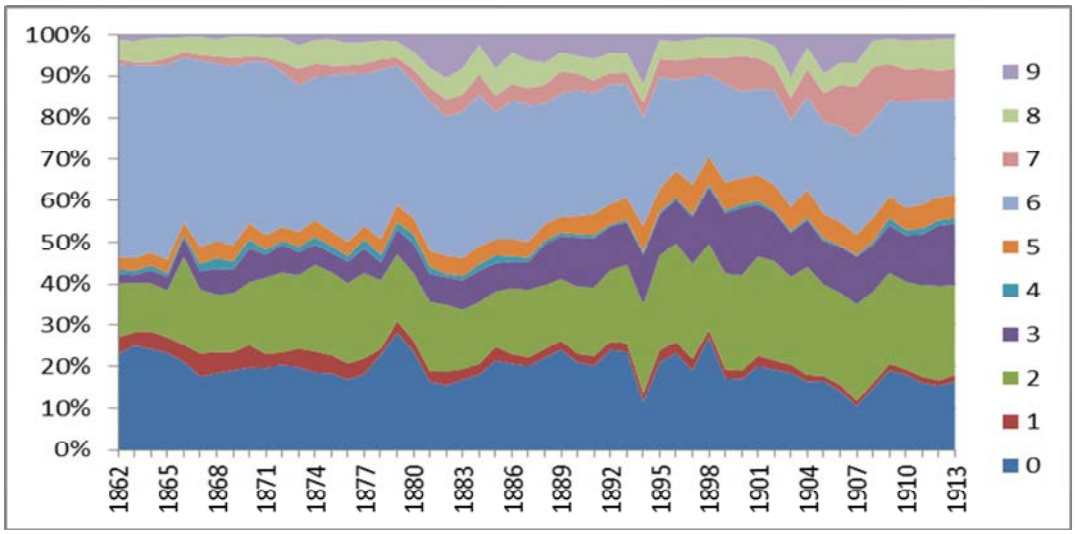
manufactured goods (6) were important but shrinking in relative size, whereas imports of animal and vegetable oils (4) and mineral fuels, lubricants and related materials (3) increased their relative importance over time. In line with what seen for exports, the combination of the two dimensions (country and sector) creates a more diverse picture (see Figure 2.7).

**Figure 2.5: Italian imports, by country of origin, share of total imports, 1862-1913**



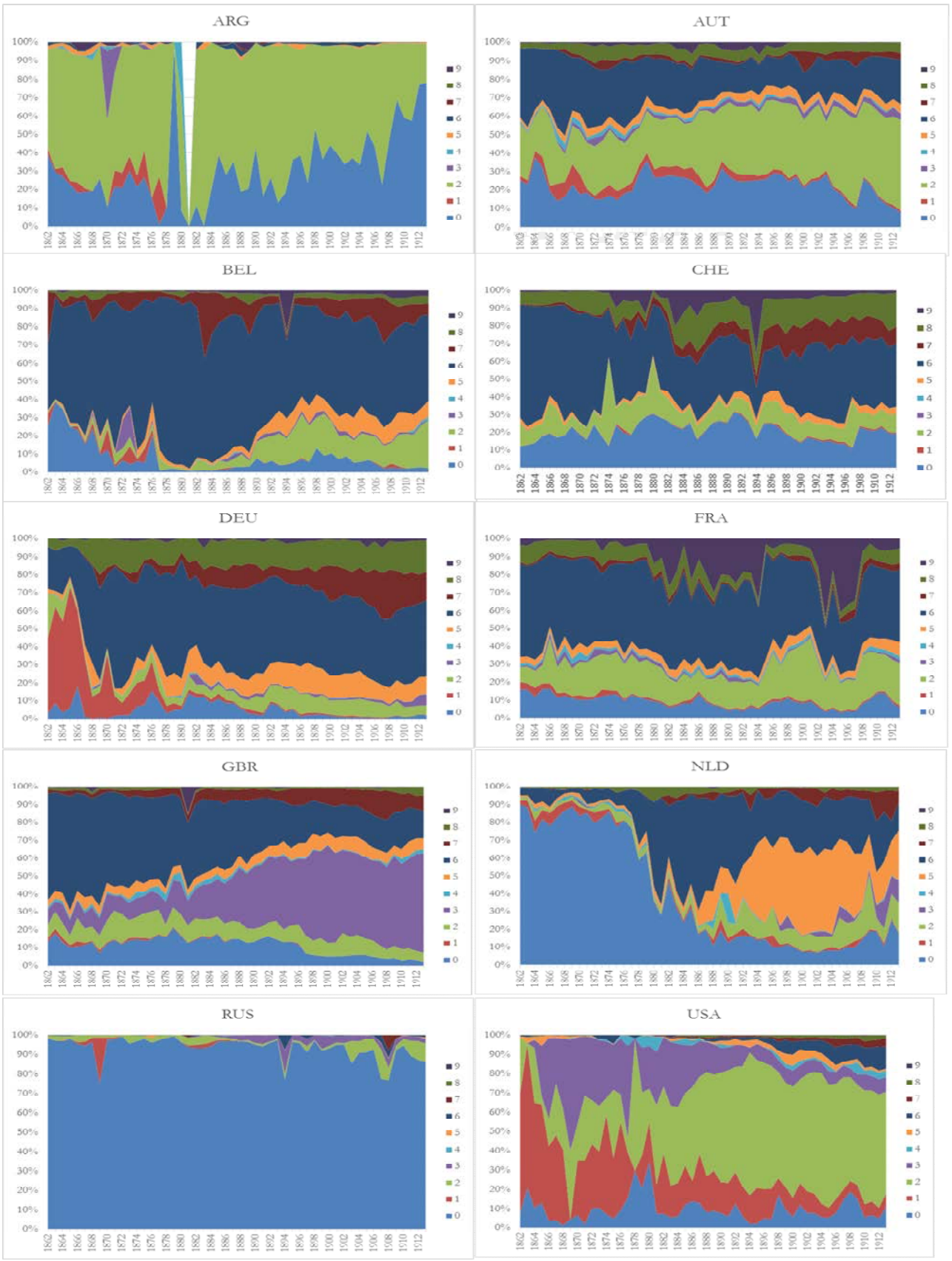

Source: Author's elaboration on Bankit-FTV

**Figure 2.6: Italian imports, by sector (SITC 1-digit category), share of total imports, 1862-1913**




Source: Author's elaboration on Bankit-FTV

**Figure 2.7: Italian imports, by country of origin and sector (SITC 1-digit category, 1862-1913)**




Source: Author's elaboration on Bankit-FTV

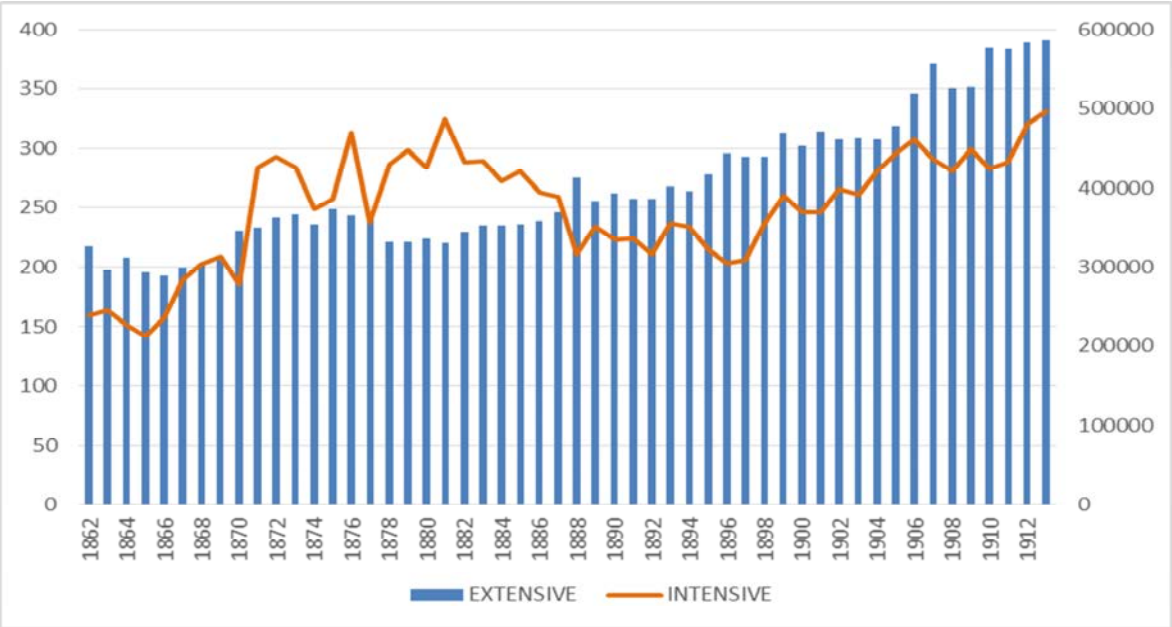
### 2.3.2 The estimation of imports and export margins

To decompose Italian exports in their intensive and extensive margins, I follow the procedure explained in Mion and Muus (2014), based on Bernard et al. (2010) and Behrens et al. (2013). Italian total exports (identified as X in the equation) can be written as

$$X_t = p_t * C_t * \bar{x}_t$$

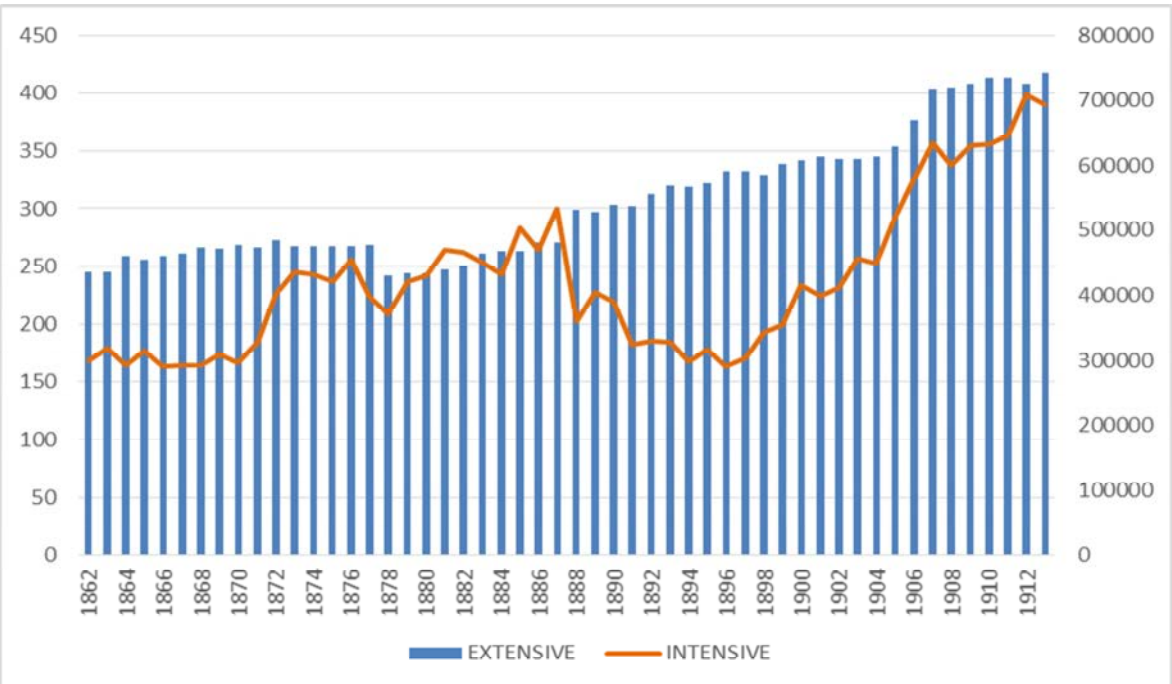
where p is the number of products exported at time t, C is the number of countries of destination. Solving for $\bar{x}_t$, $\bar{x}_t = \frac{X_t}{p_t * C_t}$. In other words, $\bar{x}_t$ is equal to the average export for a product p in a country c, and represents the intensive margins of trade. In this context, $p_t$ and $C_t$ correspond to the extensive margins: product and country margins. Due to the geographical limitations of the sample, imposed by historical sources – the FTV-Bankit database include data for the ten major destinations – I will focus on the extensive margins at the product level, rather than at the country level. However, differently from Mion and Muus (2014), I have product (and not firm) level data. Therefore, I have to follow Huberman et al. (2017), in its key assumption: the identification of firms with products, which means, in other words, to assume that any exported product constitutes "a variety produced by a representative firm" (Huberman et al., 2017, p.11). Countries and trade flows coverage (percentage of total Italian exports covered by FTV-Bankit data) of the database are reported in Appendix B.1. Figure 2.8 and Figure 2.9 show the extensive and intensive margins of Italian exports and imports respectively. Particularly, in the case of exports, export growth seems to be characterised by the alternation of the intensive and extensive margins. For both exports and imports, the "return to protectionism" in the 1880s seems to affect the intensive rather than the extensive margin. France is an outstanding example: the beginning of the tariff war (1888) between France and Italy coincides with a dramatic decrease in the intensive margins of both imports and exports. In general, the country-level analysis of the intensive and extensive margins provide a variegate picture (see Figure 2.10 for exports and Figure 2.11 for imports).

**Figure 2.8: Extensive and intensive margins of exports**



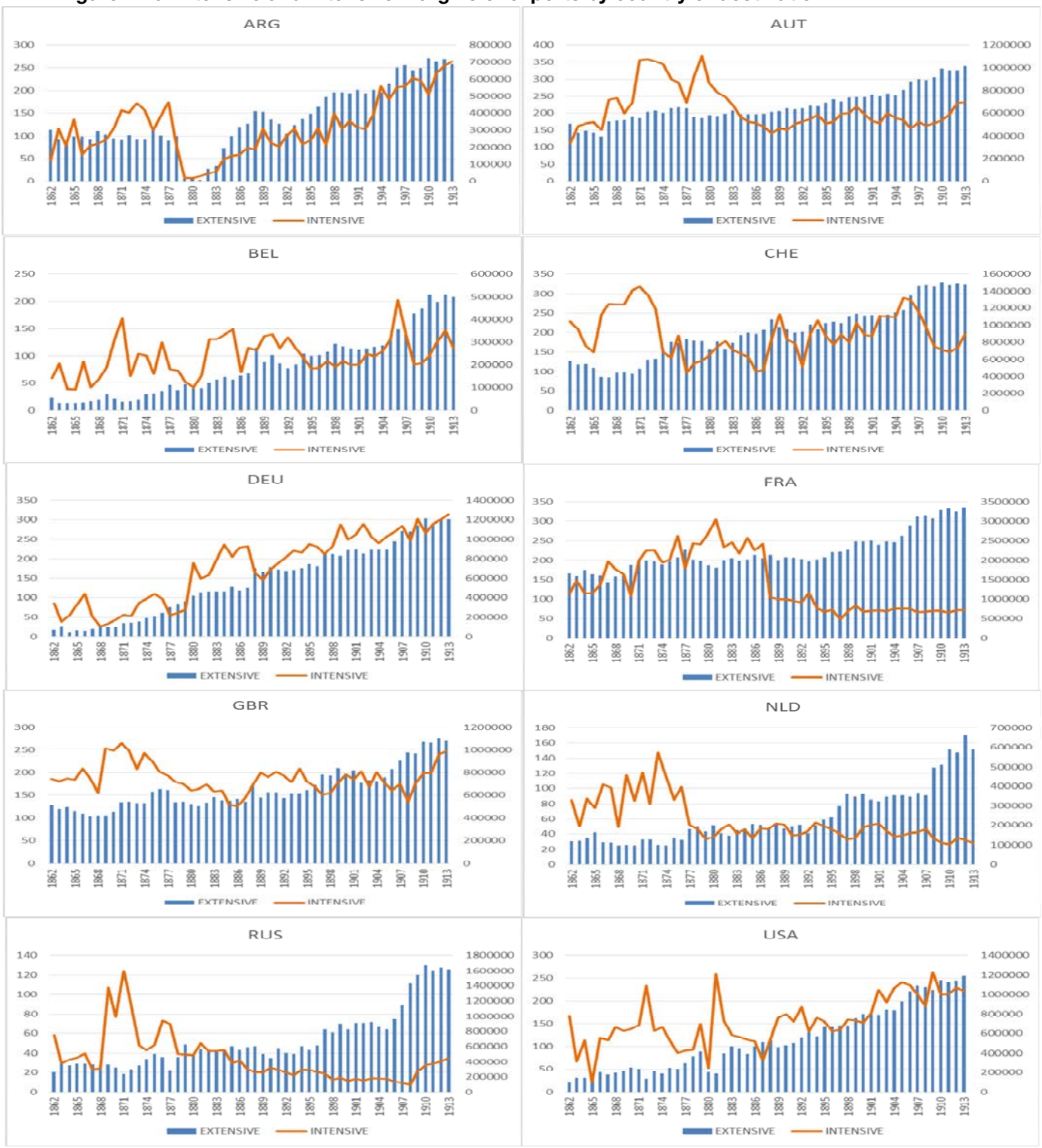

Source: Author's elaboration.
Note: Extensive margins represents the number of product exported by Italy to at least one of the countries in the sample. Intensive margins calculation: see text. Value expressed in nominal Italian local currency ("Lira").

**Figure 2.9: Extensive and intensive margins of imports**



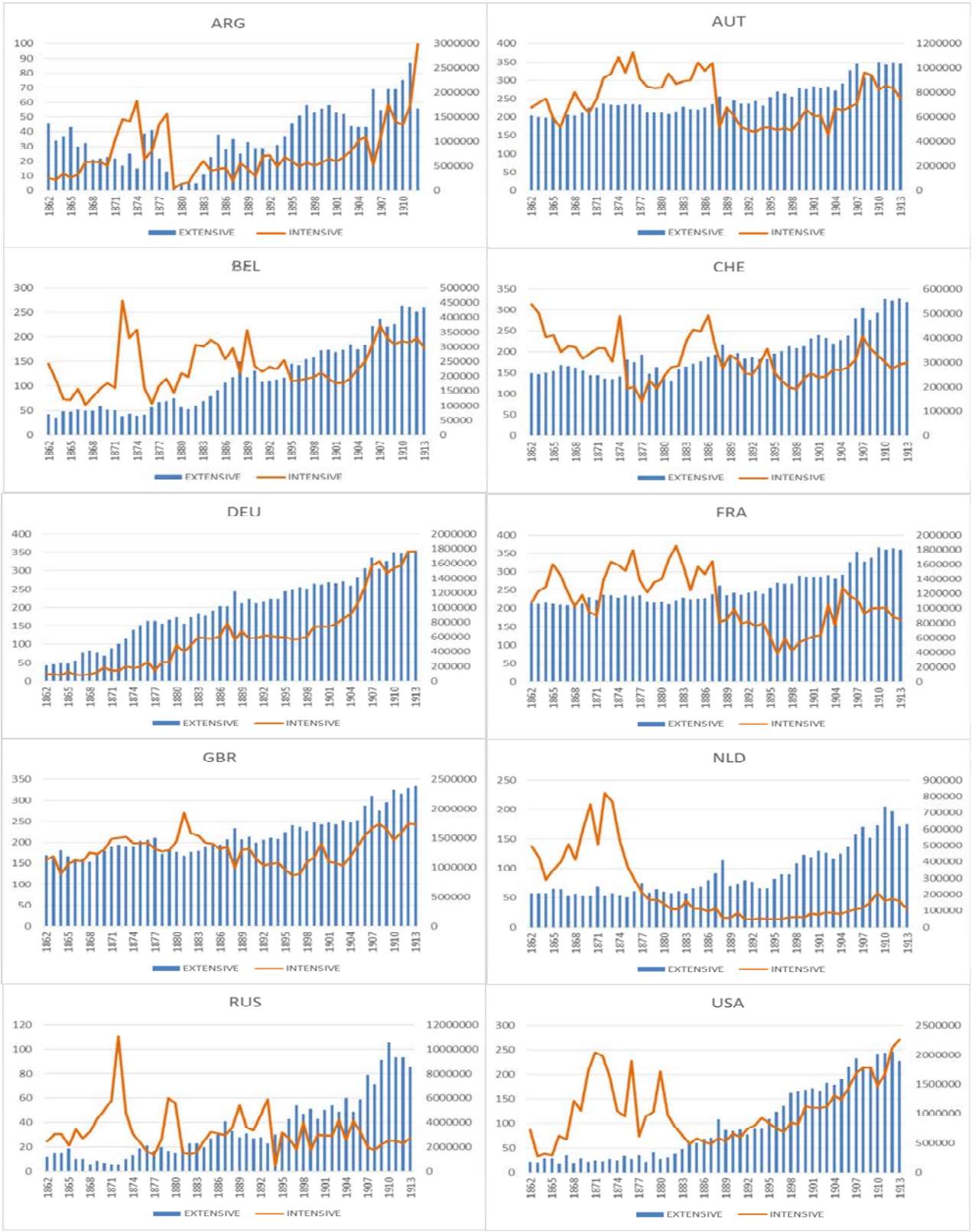

Source: Author's elaboration.
Note: Extensive margins represents the number of product exported by Italy to at least one of the countries in the sample. Intensive margins calculation: see text. Value expressed in nominal Italian local currency ("Lira")

**Figure 2.10 Extensive and intensive margins of exports by country of destination**




Source: Author's elaboration.
Note: Extensive margins represents the number of product exported by Italy to the country.
Intensive margins calculation: see text. Value expressed in nominal Italian local currency ("Lira")

**Figure 2.11 Extensive and intensive margins of imports by country of origin**




Source: Author's elaboration.
Note: Extensive margins represents the number of product exported by Italy to the country.
Intensive margins calculation: see text. Value expressed in nominal Italian local currency ("Lira")

## 2.4 Methodology and Data

### 2.4.1 Empirical strategy

The traditional approach used to estimate the determinants of export flows is based on gravity models (see Helpman and Krugman, 1985; Anderson and Van Wincoop, 2003; Head and Mayer, 2014). However the objective of this chapter is to understand the choice of entry in a specific export market in a precise moment in time. Thus, I follow, adapt and expand Roberts and Tybout (1997), Aitken et al. (1997), and Greenaway and Kneller (2008), which consider entry (and exit) decision to a specific export market with sunk costs. The aim is to understand the reasons beyond the entry of product p in the market of country j in sector s at time t, conditional to its absence at time t-1 (otherwise it would identify both "entry" and "persistence") i.e. to estimate $ME_{pjst}$, which is represented by the following formula, as in Paravisini et al. (2014), Muñoz-Sepulveda and Rodriguez (2015) and Gutierrez and Moral-Benito (2018):

$$ME_{pjst} = (Entry_{pjs\,t} | Entry_{pjs\,t-1} = 0)$$

where the choice of entry is represented by a binary variable that takes the value of either 0 ("no entry") or 1 ("entry"). To check the robustness of the results, I also adopt an alternative approach expanding the "entry" definition to "entry" and "persistence", as in Koenig et al. (2010), i.e. $MEP_{pjst} = (Entry_{pjs\,t})$.

Due to the structure of the dependent variable, it follows that I need to use a discrete choice model (which will take the logit form) that can be spelled out as follow:

$$ME(i)_{pjst} = \beta_0 + \beta X'_{pjst} + \delta Z'_{pjst} + \gamma_t + \epsilon_{pjst}$$

where $ME_{pjst}$ is the probability of market entry, defined as above. Concretely, in the main definition, I assigned 1 to every product-country-year observation where bilateral exports are different from zero at time t, subject to being equal to 0 at time t-1, and zero otherwise. $X'_{pjst}$ is a vector of independent variables that are the object of the research, and identifies spillover effects. In detail, following Muñoz-Sepulveda and Rodriguez (2015), I include Exp_Sect_Spill, which measures the number of products pertaining to the same sector (SITC 3-digit level) exported in country j at time t-1. In other words, export sector spillovers are computed for every product k (SITC 4-digit level) exported to country j at time t, and calculates the number of products (SITC 4-digit level) exported to country j belonging to the same sector (defined as the one-level broader SITC level, i.e. SITC 3-digit) at time $t-1$. Table 2.1 shows the method of calculation for a sample of two sectors (SITC 3-

digit), two countries and one year. Values in Table 2.1 are included as an example, and do not necessarily reflect those included in the Bankit-FTV database.

**Table 2.1: Explanatory example of calculating export sector spillovers**

| SITC 3-digit sectors | SITC-4 product analysed | Country | Year | SITC 4-digit products (exported product only) within the same SITC 3-digit category | | | | | Export sector Spillovers |
|---|---|---|---|---|---|---|---|---|---|
| 001 | 0011 | ARG | 1863 | 0011 | / | 0013 | 0014 | / | 2 |
| 012 | 0123 | ARG | 1863 | / | / | 0123 | / | 0125 | 1 |
| 001 | 0011 | DEU | 1863 | 0011 | 0012 | 0013 | / | 0015 | 3 |
| 012 | 0122 | DEU | 1863 | 0121 | 0122 | / | / | 0125 | 2 |

Source: Author's elaboration

These spillovers may be driven by a variety of forces, as pointed out in the literature review. However, every new entry may also be viewed as a step towards the "saturation" of a sector-relevant market, i.e. a marginal increase in the risk of "swamping" the market with foreign products. This motivate the inclusion of a quadratic term (Exp_Sect_Spill_2) to check for the existence of an inverted-U relationship between new and old entries within the same sector. This is a generalization of the mimetic isomorphism principle that Haveman (1993) proposed for organizational change in similar firms, and recalls the density dependence theory of Hannan and Freeman (1977) and Hannan and Freeman (1987). In other words, this term aims to capture the relative opportunities and risks that a market can offer. As stated by Greeve (2000), a market with no product entry is similar to an unexplored territory, it may hide both gains and losses. However as organizations are, generally, risk adverse and fear the uncertainty, they are prone to postpone the entry decision until the moment that others dig into the unknown. Consequently, once market entry started, probability of market entry should immediately go up due to the increase of available information, nevertheless if too many exploit the same opportunity they can spoil it, creating a "saturation" or a "congestion" of the market, making expected gains to fall, therefore reducing the probability of entry.

In international trade historical statistics, as in the original literature of business and organization theory, this metric faces the challenge that not all sectors/products have the same number of categories. A sector with more products – as defined by historical categorization – will have higher probability to report higher numbers. Even if in the main specification I follow the original, widely used, measure, to address this concern I normalize the number of products at the sector level in one of the robustness tests, i.e. the number of product exported within a certain sector will take a value between 0 (no "similar" product exported) and 1 (all the possible "similar" product exported). At a very first sight, it is possible to see that the normalized number of sector spillover increase in time: product exported move

towards to the possible maximum, but still remain far from it. More precisely, the mean value of the normalized sector spillover variable is equal to 0.15 in 1870, and 0.46 in 1913. A priori, I expect that using the normalized variable will not affect the results. In addition, to address potential remaining concerns I also include a robustness test using wider "sector" categories (SITC 2-digit).

Change in total (i.e. from all countries in the database) imports of a specific product (SITC 4-digit) is the last variable of interest (Imp_Sect_Spill). I have no a priori expectations on the sign as, as mentioned in the literature review, it may have either positive effects on exports, for example through the reduction in production costs, the improvement in productivity, or an increase in domestic competition, or negative, for example by the mean of a Schumpeterian process of creative destruction.

$Z'_{pjst}$ is a vector of control variables, largely taken from the literature of market entry and product specialization (e.g. Meissner and Tang, 2017; Betrán and Huberman, 2016; Schott, 2004). They encompass 1) the logarithm of the sum of exporter and importer GDP as a variable capturing the size of destination market demand (as a proxy for capturing the "economic mass"); 2) the difference between exporter and importer GDP per capita (in absolute terms), to account for diverse levels of development – which may affect the composition of importers' demand (Schott, 2004; Pham, 2008; Bertrán and Huberman, 2016; Pham and Ulubasoglu, 2016; Meissner and Tang, 2017); 3) a dummy which takes the value of 1 when a country pair has a de facto fixed exchange rate (i.e. whether or not both countries pertain de facto to the gold standard, to include – for Italy – a long period of "gold shadowing" – 1903-1911 – as argued by Cesarano et al., 2012) and zero otherwise, aiming at controlling for the potential positive effect of a stable exchange rate on trade flows (Lopez-Cordova and Meissner, 2003). In line with Meissner and Tang (2017), I also control for a set of other factors that may influence the decision of entering a specific market: change in the total number of products exported to destination j (t-1), the number of markets in which the product is present (t-1), and the growth rate of exports to country j between the current period and the previous year (excluding product p). Finally, Stanziani (2010), inter alia, acknowledges the presence of Italian immigrants in the destination country as an important factor influencing market entry.[54] Therefore, it would be ideal to control for this factor too.

[54] In particular, Stanziani (2010) argues that: "Italian traders willing to enter a new market abroad were above all in search of Italian correspondents. The sizeable presence of Italian immigrants […] encouraged this approach. The importance of the overseas Italian community in commercial relations made it easier for the Italian foreign office to get timely information for homeland companies and traders seeking to enter a particular market. Emigration also assisted the establishment of commercial networks usually followed patterns of emigration; family members (in the broad sense) gave commercial support to their relatives' homeland trade or productive unit. They provided information about their local market, helped to find correspondents) when they themselves did not play this role) and promoted the family or local product" (p.54).

Unfortunately, there are no annual data on the Italian immigrants' stock sorted by destination country. The only yearly measure I was able to derive is a very rough approximation derived from data on migration flows (Istat, 2018). Perfectly acknowledging the strong limitation of the variable, I nevertheless included as a robustness test. Finally, I use year dummies to control for any time-sensitive variable, such as the world's and Italy's state of technology and its business cycle, as well as other revelant Italian features; and robust standard error, clustered at product-country level (as in Meissner and Tang, 2017), to control for, respectively, heteroscedasticity and those phenomena that affect homogeneously each group sharing the two characteristics above (product and country). Other standard gravity variables, such as diplomatic representation (Rose, 2007), colonial relationship or common language are not included as there is not enough variance in the sample. The same applies – to a certain extent – to trade agreements. Indeed, bilateral trade agreements between Italy and the other countries in the sample exist for the entire period under consideration, even if with changing conditions. Therefore, identifying the existence of a treaty with a dummy could be problematic for two reasons: first because the value would be 1 for most dyads, and second because it would not allow to capture eventual changes in the treaty conditions without a value judgement. Nevertheless, to provide a robustness test, I follow Accominotti and Flandreau (2008) in using an alternative method to account for "openness" to trade (see section 2.5.2 for further details).

### 2.4.2 Data

The data were obtained from the recently released Bankit-FTV database. This database is the result of an incredible effort in digitalising all the sources that directly and indirectly collected trade transaction statistics, such for example the volumes of Movimento Commerciale, released annually by the Kingdom of Italy since 1862 (the primary source par excellence for Italian trade data), and other secondary sources which summarised the enormous amount of information collected by the Movimento, e.g. Istat[55] publications (Federico et al., 2012). The database enumerated Italian exports and imports by quantity and value, at the SITC 4-digit level. Indeed, the fine level of detail of the data (see Table 2.2 below for an example of differences among SITC 1, 2, 3, or 4 digit,), allows to group products which share common characteristics (or a similar intended usage), making the existence of "spillovers" plausible (or more plausible that in the case – say – of having access to SITC 1 or 2 digit data).

The Bankit-FTV database contains information on approximately 400 different products at SITC 4-digit level per period t, between Italy and its ten major trade partners (Argentina, Austria-Hungary, Belgium, France, Germany, Great Britain, the

[55] Istituto Nazionale di Statistica – National Institute of Statistics

Netherlands, Russia, Switzerland, and United States). Moreover, the database contains data for different products within the SITC 4-digit, categorised by the name of the product as recorded in the primary source. Unfortunately, it is impossible to use this further separation, as product labels are not coherent in time and space. The original database contains only those products that have been exported to one destination in a specific year. I inflate the database to include additional "zeros" of trade. The final database, for the period 1862-1913, contains more than 200,000 observations at the country-product-year level. Its yearly – and continuous – coverage permits also to relax the assumption – made by other historical studies that use benchmark years or interpolation techniques – of no entry, exit, and/or subsequent entry between two points in time, and precisely determine the entry time of a specific product.

**Table 2.2: Example of a SITC Categorization**

| SITC 1 digit | SITC 2 digit | SITC 3 digit | SITC 4 digit |
|---|---|---|---|
| **0 - Food and live animals**<br>1 - Beverages and tobacco<br>2 - Crude materials, inedible, except fuels<br>3 - Mineral fuels, lubricants and related materials<br>4 - Animal and vegetable oils, fats and waxes<br>5 - Chemicals and related products, n.e.s.<br>6 - Manufactured goods classified chiefly by material<br>7 - Machinery and transport equipment<br>8 - Miscellaneous manufactured articles<br>9 - Commodities and transactions not classified elsewhere in the SITC | 00 - Live animals other than animals of division 03<br>01 - Meat and meat preparations<br>**02 – Dairy products and birds' eggs**<br>03 - Fish (not marine mammals), crustaceans, molluscs and aquatic invertebrates, and preparations thereof<br>04 - Cereals and cereal preparations<br>05 - Vegetables and fruit<br>06 - Sugars, sugar preparations and honey<br>07 - Coffee, tea, cocoa, spices, and manufactures thereof<br>08 - Feeding stuff for animals (not including unmilled cereals)<br>09 - Miscellaneous edible products and preparations | **022 - Milk and cream and milk products other than butter or cheese**<br>023 - Butter and other fats and oils derived from milk<br>024 - Cheese and curd<br>025 - Eggs, birds', and egg yolks, fresh, dried or otherwise preserved, sweetened or not; egg albumin | 0221 - Milk (including skimmed milk) and cream, not concentrated or sweetened<br>0222 - Milk and cream, concentrated or sweetened<br>0223 - Yogurt; buttermilk, curdled, fermented or acidified milk and cream; ice-cream<br>0224 - Whey; products consisting of natural milk constituents, n.e.s |

Source: Author's elaboration on unstats.un.org.

The percentage of total trade captured by the commercial relations with the countries included in the database is relatively constant over time, and oscillates between 70 and 90 per cent, which constitutes a representative share of the total (for more details see Appendix B.1). I recall that information is at product – and not firm – level. Therefore I have to assume (same as in Hubermann et al., 2017) that the specific variety is produced by a "representative firm" or that firms within a

product category are sufficiently homogenous. The observations included in the Bankit-FTV database are combined with a set of macroeconomic, political, geographic, sector, and market specific characteristics collected by a variety of sources. Summary statistics are provided in Appendix B (Table B.1.3).

## 2.5 Results

### 2.5.1 Market entry

This subsection presents the regression results of the determinants of market entry of Italian products (SITC 4-digit) in the top 10 export destinations over the period 1862-1913. Results for the logit model are reported in Table 2.3. The variables of interest, related to exports and imports "spillovers", namely Exp_Sect_Spill, Exp_Sect_Spill_2 and Imp_Sect_Spill are all significant, and with the expected sign. In details Exp_Sect_Spill is positive and Exp_Sect_Spill_2 is negative across all specifications including them (column 2 and 4). This means that the presence of "similar" exported products (at SITC 3-digit) increased the probability of entry in the destination market, due to a variety of possible drivers, that should be investigated further in future research, such as the role of trade intermediaries; the effect of labour mobility; the increasing role played by multinational enterprises; as well as, more broadly, the creation of a superior sector-specific knowledge accumulated by the same or a similar firm selling similar products; the consequences of mimetic forces; or when firms with similar or complementary products decide to export as an effect of the behaviour of their peers. Only with firm level data it would be possible to unfold these effects.

In addition, the coefficient of Exp_Sect_Spill_2 is negative. This points towards the existence of an inverted-U relationship between the presence of similar exports in a specific market (i.e. destination country) and the probability of entry in that market, in line with mimetic isomorphism and density dependence theories (Haveman, 1993; Hannan and Freeman, 1977; Hannan and Freeman, 1987; and Greeve, 2000). In other words, once the initial uncertainty linked to the "unknown" disappears (lowering the associated risk), exports of similar products are more prone to enter a specific market. However, when there are too many new entrants the market reaches a "saturation"/"congestion" level, possibly related to increasing competition effects. This effect also holds when I consider a larger group of similar products (SITC 2-digit, a maximum of 28 product within each category), to avoid potential problems related to a "too narrow" definition of categories.

Imp_Sect_Spill also affects positively the likelihood of product entry in a market. In other words, the greater the increase in the imports of a product k at time t-1, the more likely the product was to be exported at time t. This positive effects may not only be "indirect" through productivity or technology, but "direct" through a reduction in production costs. However, if imported products were not used as

inputs in the domestic production process, but competed with domestic products in the market instead, the effects of increased imports on exports may act through a different channel: the firm (product) strive for survival may oblige domestic (and less competitive) firms (products) to find compatible foreign markets, characterised by lower productivity. Finally, import competition may have positive effects through an indirect channel, stimulating productivity and innovation as in a model à la Aghion et al. (2005), where firms decide to face the increase in foreign competition investing more in innovation, increasing productivity and overcoming fixed costs related to export activities, therefore opening a wider set of markets, which were previously unaffordable.

**Table 2.3: Main regressions. Spillovers at SITC-3**

| | (1)<br>Market Entry | (2)<br>Market Entry | (3)<br>Market Entry | (4)<br>Market Entry |
|---|---|---|---|---|
| lndist | 0.0277<br>(0.0171) | 0.0282*<br>(0.0171) | 0.0281<br>(0.0175) | 0.0307*<br>(0.0175) |
| lnGDPGDP | 0.0439<br>(0.0283) | 0.0417<br>(0.0282) | 0.0446<br>(0.0292) | 0.0419<br>(0.0291) |
| ABSdiffGDPc | 0.0250<br>(0.0308) | 0.0241<br>(0.0308) | 0.0254<br>(0.0311) | 0.0253<br>(0.0311) |
| L.DExpAllMark | 0.0852***<br>(0.0316) | 0.0863***<br>(0.0319) | 0.0863***<br>(0.0319) | 0.0885***<br>(0.0322) |
| L.NofMarket | 0.0128***<br>(0.00384) | 0.0129***<br>(0.00385) | 0.0130***<br>(0.00387) | 0.0130***<br>(0.00387) |
| GS | 0.152***<br>(0.0545) | 0.151***<br>(0.0544) | 0.154***<br>(0.0550) | 0.153***<br>(0.0548) |
| DLnproddest | 0.00105<br>(0.00113) | 0.000917<br>(0.00113) | 0.00106<br>(0.00114) | 0.000866<br>(0.00114) |
| L.Exp_Sect_Spill | | 0.220***<br>(0.0295) | | 0.234***<br>(0.0297) |
| L.Exp_Sect_Spill_2 | | -0.0638***<br>(0.00748) | | -0.0641***<br>(0.00747) |
| L.Imp_Sect_Spill | | | 0.0994***<br>(0.00259) | 0.0995***<br>(0.00259) |
| N | 204,183 | 204,183 | 204,183 | 204,183 |

Source: Author's elaboration

Notes: Logit regressions. Dependent variable: Market entry, as defined in the text. All regressions include a constant, and time fixed effects, not reported for the sake of simplicity. Robust standard errors clustered at country-product level in parentheses; *** p<0.01, ** p<0.05, * p<0.1.

Control variables' coefficients have, in general, the expected signs. Trade costs are proxied by distance and the gold standard dummy. The former is positive and

often not significant. Although against conventional wisdom, it is likely that strong export performances to US and Argentina may influence this variable. This hypothesis is confirmed by the results of the robustness tests, when – excluding non-European countries from the sample – distance becomes negative and significant. The latter instead is positive and significant, meaning that the gold standard favoured market entry, in line with the literature (e.g. Lopez-Cordova and Meissner, 2003). Demand-side variables offer some insights on the importance of the economic size of markets, and on how similarity mattered for Italian exports. Economic size is positive but non-significant. However, this result can also be due to the usual problems of historical GDP data when used in trade literature. The same applies to the absolute difference of GDP per capita. Finally, the difference of total number of products exported, the growth rate of other products exported to destination j during the previous period, and the number of markets in which the specific product (SITC 4-digit) present the expected sign and, in the majority of the cases, a significant coefficient.

### 2.5.2 Robustness tests

To test the robustness of the results, I run different specifications of the model (see Table 2.4 and Table 2.5). In column 1 I use a different definition for market entry, which includes "persistence", i.e. identifies market entry as the presence of a product in a given country and year (see section 2.4.1 on methodology for more details). In column 2, I uses a normalized indicator for export spillovers: the number of similar products will be comprised between 0 (no similar product exported) and 1 (all the similar product exported), to minimize possible biases deriving from the different number of products included within each SITC 3 digit category. In column 3, I define spillovers at SITC2 level instead of SITC3, to include a wider set of "similar products" (passing from a maximum of 6 to a maximum of 28). In column 4, I consider the importance of Italian immigration for exports and market entry, including a rough approximation of the number of Italian immigrants to check whether results are consistent. In theory, the "attraction" for Italian products should be related to the "mass" of immigrants present in the country of destination (i.e. the "stock"), and not necessarily to the change in the number of immigrants ("flows"). Unfortunately, annual data directly measuring the "stock" of Italian immigrants sorted by country of destination are not available. Nevertheless, Istat (the Italian statistical office) reconstructed yearly measures of gross immigrant flows to a subset of these countries (available at http://seriestoriche.istat.it and based on Istat, 1933). From these data, I derived the migrant stock, cumulating flows through time. I am perfectly aware that this measure is very far from perfection, and it requires very strong assumptions (for example, I am forced to assume that 1) the initial stock of Italian immigrants was equal in all the countries of the sample, and 2) repatriation flows were either zero or proportional from all countries). Nevertheless, it is the closest possible approximation to gather the size of the Italian immigrant

community. Results are robust to its inclusion, and its coefficient is positive, however not significant.

In column 5 and 6, I drop from the dataset non-European country of destination (i.e. Argentina, Russia and US) and France (the most relevant country for Italian trade during a substantial part of the period) respectively. In the first case, the distance coefficient turns negative (in line with what expected) when the sample is restricted to European countries. In addition, in column 7, I use population instead of GDP data, to fill relevant gaps (mainly for Russia). In an additional robustness test, I drop silk data (product SITC 6511), Italy main export during the whole period considered (Federico, 2005). Their prominent role in Italian exports may be the source of biases in the results. However, the test performed in column 8 excludes this possibility, as results are robust to this specification. Finally, in Meissner and Tang (2017), it is also included an additional control variable, a dummy identifying the MFN treaty status. In the case of Italy, the use of a similar variable will raise at least two major issues. The first is that, if interpreted sensu lato, the dummy will show very little variance for some of the countries. The second consist in the value judgment that an interpretation more sensu stricto will imply. Indeed, the signature of a "new" treaty that has the effect of substituting the previous one should be judged as "liberalizing" or "protectionist", in order to decide whether to keep the dummy with the same value, or to switch it off. This will apply even for those cases where the treaty may have implications that go in opposite directions for different categories of goods. To solve this situation, due to the impossibility of gathering all the combinations tariff/product/country/year in force, I follow Accominotti and Flandreau (2008) in calculating an average measure of protection per each combination country/year, as "the ratio of custom revenues to total imports". In line with their results, the coefficient of this measure is not statistically significant, potentially indicating little influence of liberalization on market entry. Nevertheless, as highlighted by Lampe (2009), the MFN treaties often "did not pursue overall trade liberalization, but rather reductions in duties on specific commodities". Consequently, the lack of significance may also be due to the level of aggregation used.

Additionally, in Table 2.6, I address the potential problems arising from a time-varying efficiency of the Italian administration. Indeed, 18th century states had limited administrative means (Loïc and Daudin, 2015), including for the management of their economic frontiers, the imposition of customs and duties, and the correct registrations of trade flows, and in particular of those of limited size. Indeed, the minimum trade flow registered, an indicator for the efficiency of the administration (i.e. the more efficient an administration, the more likely it is to capture and record small trade flows), varies from 2.5 liras in 1907 (10 "2015 euros")[56] to 720 in 1891

[56] Calculated using the Sole 24 Ore (main financial newspaper in Italy) web address: http://www.infodata.ilsole24ore.com/2016/05/17/calcola-potere-dacquisto-lire-ed-euro-dal-1860-2015/

(approximately 3000 “2015 euros”).[57] Therefore, I consider like “zeros of trade” all those trade flows that are below 50, 100, 500 and 1000 liras (respectively column 10 to 13). The proposed changes do not affect the sign nor the significance of the main variable of interests (export and import spillovers).

Finally, in Table 2.7, I address the potential concerns related to the assumption of proxing the number of firms with the number of products (as in Hubermann et al., 2017). However, this assumption requires a constant number of potential products, i.e. a stable classification of the products over the years. However, in the specific case of Italy, the classification happened to change often. Changes of particular magnitude happened with the approval of the new tariff schedule of 1878, 1888, and 1907. In the main specification of this paper, as well as in the robustness tests, I use the FTV SITC 4-digit categorization, instead of the original categories, named “voci” (in practice, this means to aggregate some “voci” into different SITC 4-digit categories). Even if this strategy contributes to reducing the possible bias, it does not suppress it completely. To address this consideration, I first display the time dummies (already included in the main specification) of the major changes in the tariff schedule (column 14). As they are significant, I decide to include as additional variables period-specific dummies for the periods with no overall changes or reform of the tariff schedule (i.e, 1862-1878, 1879-1887, and 1888-1906, therefore using 1907-1913 as a benchmark). Their significant coefficients (column 15) imply the presence of different trends within the sample (in comparison with the latter period), whose presence, however, does not affect the significance of the main results. Finally, I also run a separate regression for any of the periods reflecting the dummies included in the previous regression, to minimize the incidence of changes in product classification within each of these samples (columns 16 to 18). Results hold for all the different samples used.

[57] 1891 is indeed a year of particular financial constraints: even the once every ten year planned census was suspended due to financial restrictions (Fracassi, 1961).

**Table 2.4: Robustness tests (part 1)**

| | (1) Market Entry (including "persistence") (MEP) | (2) Market Entry (Normalized Spillovers) | (3) Market Entry (Spillovers SITC 2-digit) | (4) Market Entry (with immigrants) | (5) Market Entry (without US, ARG, RUS) |
|---|---|---|---|---|---|
| lndist | -0.268*** | 0.0315* | 0.0474*** | 0.0247 | -0.384*** |
| | (0.0311) | (0.0175) | (0.0173) | (0.0199) | (0.0977) |
| lnGDPGDP | 0.0636 | 0.040 | 0.0282 | 0.0391 | 0.306*** |
| | (0.0478) | (0.029) | (0.0290) | (0.0367) | (0.0554) |
| ABSdiffGDPc | -0.160*** | 0.026 | 0.0366 | 0.0959** | 0.0520 |
| | (0.0478) | (0.031) | (0.0312) | (0.04) | (0.0427) |
| L.DExpAllMark | 0.0242 | 0.0871*** | 0.0918*** | 0.167*** | -0.0288 |
| | (0.0152) | (0.0321) | (0.0326) | (0.0434) | (0.0538) |
| L.NofMarket | 0.0120*** | 0.0129*** | 0.0128*** | 0 | 0.0156*** |
| | (0.002) | (0.004) | (0.004) | (0.006) | (0.046) |
| GS | 0.0408 | 0.152*** | 0.144*** | -0.152* | 0.162** |
| | (0.0505) | (0.0548) | (0.0545) | (0.0919) | (0.0799) |
| DLnproddest | 0.00407*** | 0.0009 | 0.000392 | -0.000956 | -0.001 |
| | (0.0004) | (0.0011) | (0.0012) | (0.0016) | (0.0014) |
| L.Exp_Sect_Spill | 0.471*** | 0.694*** | 0.0852*** | 0.172*** | 0.170*** |
| | (0.0427) | (0.1344) | (0.0086) | (0.0404) | (0.0351) |
| L.Exp_Sect_Spill_2 | -0.0319*** | -0.722*** | -0.0047*** | -0.0565*** | -0.0533*** |
| | (0.0104) | (0.1434) | (0.00053) | (0.0097) | (0.0085) |
| L.Imp_Sect_Spill | 0.0183*** | 0.0998*** | 0.100*** | 0.117*** | 0.112*** |
| | (0.0012) | (0.0026) | (0.0026) | (0.0038) | (0.003) |
| L.ItalianImmigrants | | | | 0.0227 | |
| | | | | (0.03) | |
| N | 204,183 | 204,183 | 204,183 | 86,436 | 151,704 |

Source: Author's elaboration.

Notes: Logit regressions. Dependent variable: Market entry, as defined in the text. All regressions include a constant, and time fixed effects, not reported for the sake of simplicity. Robust standard errors clustered at country-product level in parentheses; *** p<0.01, ** p<0.05, * p<0.1.

**Table 2.5: Robustness tests (part 2)**

| | (6) Market Entry (without France) | (7) Market Entry (with POP) | (8) Market Entry (without "silk") | (9) Market Entry (including "protection") |
|---|---|---|---|---|
| lndist | 0.0332* | 0.0410** | 0.0301* | 0.0688** |
| | (0.0178) | (0.0169) | (0.018) | (0.0284) |
| lnGDPGDP | 0.0344 | | 0.0426 | 0.116*** |
| | (0.0291) | | (0.0291) | (0.0326) |
| lnPOPPOP | | -0.0132 | | |
| | | (0.0319) | | |
| ABSdiffGDPc | 0.0289 | 0.0317 | 0.0250 | -0.0778*** |
| | (0.0323) | (0.0306) | (0.031) | (0.0347) |
| L.DExpAllMark | 0.074** | 0.0856*** | 0.0859*** | 0.134*** |
| | (0.0337) | (0.032) | (0.032) | (0.0337) |
| L.NofMarket | 0.0156*** | 0.0126*** | 0.0129*** | 0.0113*** |
| | (0.004) | (0.004) | (0.004) | (0.004) |
| GS | 0.182*** | 0.170*** | 0.154*** | 0.140** |
| | (0.056) | (0.0551) | (0.055) | (0.0548) |
| DLnproddest | 0.0011 | 0.0009 | 0.0009 | 0.0012 |
| | (0.0012) | (0.0012) | (0.0014) | (0.0012) |
| L.Exp_Sect_Spill | 0.248*** | 0.235*** | 0.236*** | 0.224*** |
| | (0.0312) | (0.0297) | (0.03) | (0.0310) |
| L.Exp_Sect_Spill_2 | -0.0663*** | -0.0643*** | -0.0642*** | -0.0625*** |
| | (0.008) | (0.007) | (0.008) | (0.0077) |
| L.Imp_Sect_Spill | 0.0906*** | 0.0995*** | 0.0995*** | 0.0998*** |
| | (0.0028) | (0.00258) | (0.0026) | (0.0027) |
| Ln(1+Protection) | | | | -0.039 |
| | | | | (0.0257) |
| N | 182,133 | 204,183 | 203,720 | 186,102 |

Source: Author's elaboration.

Notes: Logit regressions. Dependent variable: Market entry, as defined in the text. All regressions include a constant, and time fixed effects, not reported for the sake of simplicity. Robust standard errors clustered at country-product level in parentheses; *** p<0.01, ** p<0.05, * p<0.1.

**Table 2.6: Robustness tests (part 3)**

| | (10) Market Entry (if bilateral flows>50 liras) | (11) Market Entry (if bilateral flows>100 liras) | (12) Market Entry (if bilateral flows>500 liras) | (13) Market Entry (if bilateral flows>1000 liras) |
|---|---|---|---|---|
| lndist | 0.033* | 0.0347* | 0.0324* | 0.0313*** |
| | (0.0175) | (0.0177) | (0.0185) | (0.019) |
| lnGDPGDP | 0.045 | 0.0431 | 0.0549 | 0.0531 |
| | (0.029) | (0.0295) | (0.0307) | (0.0315) |
| ABSdiffGDPc | 0.021 | 0.2324 | 0.0216 | 0.1128 |
| | (0.0312) | (0.0313) | (0.032)) | (0.0325) |
| L.DExpAllMark | 0.0896 | 0.0879*** | 0.0888*** | 0.0798*** |
| | (0.0322) | (0.00387) | (0.0326) | (0.0322) |
| L.NofMarket | 0.0124*** | 0.0125*** | 0.0127*** | 0.0123*** |
| | (0.004) | (0.0039) | (0.0039) | (0.0016) |
| GS | 0.1519*** | 0.1495*** | 0.139 | 0.143** |
| | (0.0549) | (0.0549) | (0.0548) | (0.0552) |
| DLnproddest | 0.00099 | 0.0011 | 0.00148 | 0.0014 |
| | (0.0011) | (0.0011) | (0.0011) | (0.0011) |
| L.Exp_Sect_Spill | 0.2302*** | 0.2308*** | 0.238*** | 0.255*** |
| | (0.0298) | (0.0299) | (0.0307) | (0.031) |
| L.Exp_Sect_Spill_2 | -0.06296*** | -0.0627*** | -0.0621*** | -0.0628*** |
| | (0.0075) | (0.007) | (0.0077) | (0.0076) |
| L.Imp_Sect_Spill | 0.0989*** | 0.0980*** | 0.0932*** | 0.0891*** |
| | (0.0026) | (0.0026) | (0.0026) | (0.0026) |
| N | 204,183 | 204,183 | 204,183 | 204,183 |

Source: Author's elaboration.

Notes: Logit regressions. Dependent variable: Market entry, as defined in the text. All regressions include a constant, and time fixed effects, not reported for the sake of simplicity. Robust standard errors clustered at country-product level in parentheses; *** p<0.01, ** p<0.05, * p<0.1.

**Table 2.7: Robustness tests (part 4)**

| | (14) Market Entry (dummies 1878, 1888, 1907) | (15) Market Entry (with period-specific dummies) | (16) Market Entry (1862-1877 only) | (17) Market Entry (1878-1887 only) | (18) Market Entry (1889-1906 only) |
|---|---|---|---|---|---|
| lndist | 0.0307* | 0.0307* | -0.1218** | 0.0826** | 0.076*** |
| | (0.0175) | (0.0175) | (0.0473) | (0.039) | (0.0247) |
| lnGDPGDP | 0.0419 | 0.0419 | 0.1596** | 0.0753 | -0.0023 |
| | (0.0291) | (0.0291) | (0.0715) | (0.0654) | (0.0397) |
| ABSdiffGDPc | 0.0253 | 0.0253 | -0.0832 | 0.1059** | 0.0327 |
| | (0.0311) | (0.0311) | (0.0529) | (0.0518) | (0.0579) |
| L.DExpAllMark | 0.0885*** | 0.0885*** | -0.1227* | 0.212*** | 0.1082 |
| | (0.0322) | (0.0322) | (0.0678) | (0.0511) | (0.0788) |
| L.NofMarket | 0.0130*** | 0.0130*** | 0.01623 | 0.0191* | 0.00098 |
| | (0.00387) | (0.00387) | (0.0112) | (0.0111) | (0.00546) |
| GS | 0.153*** | 0.153*** | 0.250 | 0.1106 | 0.1877*** |
| | (0.0548) | (0.0548) | (0.1859) | (0.0902) | (0.0696) |
| DLnproddest | 0.000866 | 0.000866 | 0.00335 | -0.0022 | -0.00227 |
| | (0.00114) | (0.00114) | (0.0031) | (0.0022) | (0.00186) |
| L.Exp_Sect_Spill | 0.234*** | 0.234*** | 0.450*** | 0.214*** | 0.2087*** |
| | (0.0297) | (0.0297) | (0.0712) | (0.0598) | (0.0413) |
| L.Exp_Sect_Spill_2 | -0.0641*** | -0.0641*** | -0.1014*** | -0.0399*** | -0.0579*** |
| | (0.00747) | (0.00747) | (0.0219) | (0.0152) | (0.013) |
| L.Imp_Sect_Spill | 0.0995*** | 0.0995*** | 0.0930*** | 0.1286*** | 0.0976*** |
| | (0.00259) | (0.00259) | (0.0057) | (0.0056) | (0.00364) |
| 1878 | 0.318** | 0.318*** | | | |
| | (0.1178) | (0.1178) | | | |
| 1888 | 0.590*** | 0.0625 | | | |
| | (0.1147) | (0.0797) | | | |
| 1907 | 0.535*** | 0.2388*** | | | |
| | (0.1262) | (0.0838) | | | |
| 1862-1878 | | -0.2966** | | | |
| | | (0.1296) | | | |
| 1879-1888 | | -0.3708*** | | | |
| | | (0.10108) | | | |
| 1889-1906 | | 0.2312*** | | | |
| | | (0.0816) | | | |
| N | 204,183 | 204,183 | 48,510 | 41,013 | 83,790 |

Source: Author's elaboration.

Notes: Logit regressions. Dependent variable: Market entry, as defined in the text. All regressions include a constant, and time fixed effects, not reported for the sake of simplicity. Robust standard errors clustered at country-product level in parentheses; *** p<0.01, ** p<0.05, * p<0.1.

## 2.6 Conclusions

This chapter revises the evolution of Italian exports since the Unification until WWI, with a particular focus on market entry. Building on the existing literature and exploiting the recently released Bankit-FTV database, I first construct the intensive and extensive margins for Italian exports during the period 1862-1913 and, second, show the existence of "spillover" effects influencing the probability of Italian exports to enter a foreign market. Those effects are linked to the Italian export and import dynamics.

The quantitative analysis, based on a logit model, shows robust support for what it has been referred to, throughout this chapter, as "export spillovers" and "import spillovers".

In the first case, this means that the presence of "similar" exported products increases the probability of entry in the destination market, due to either the creation of a superior sector-specific knowledge, accumulated by the same or a similar firm selling similar products when firms with similar or complementary products decide to export as a consequence of the behaviour of their peers, or other mechanisms that should be unfolded using firm-level data. In addition, I detect an inverted-U relationship between the presence of similar exports in a specific market and the probability of entry in a market. This would prove the existence of a threshold, above which the market reaches a "saturation"/"congestion" level, possibly due to increasing competition among Italian products in the foreign country.

In the second case, "import spillovers" also affect positively the likelihood of product entry in a market: the greater the increase in the imports of a product k at time t-1, the more likely the product was to be exported at time t. This positive effects may not only be "indirect" through productivity or technology, but "direct" through a reduction in production costs. However, if imported products were not used as inputs in the domestic production process, but competed with domestic products in the market instead, the effects of increased imports on exports may act through a different channel: the firm (product) strive for survival may oblige domestic (and less competitive) firms (products) to find compatible foreign markets, characterised by lower productivity. Finally, import competition may have positive effects through an indirect channel, stimulating productivity and innovation as in a model à la Aghion et al. (2005), where firms decide to face the increase in foreign competition investing more in innovation, increasing productivity and overcoming fixed costs related to export activities, therefore opening a wider set of markets, which were previously unaffordable.

Even if quantitative analysis shows robust results and the theoretical explanations elaborated in the chapter may sound appealing, with (Italian) product-level data it is not possible to confirm the main forces beyond the spillover effects

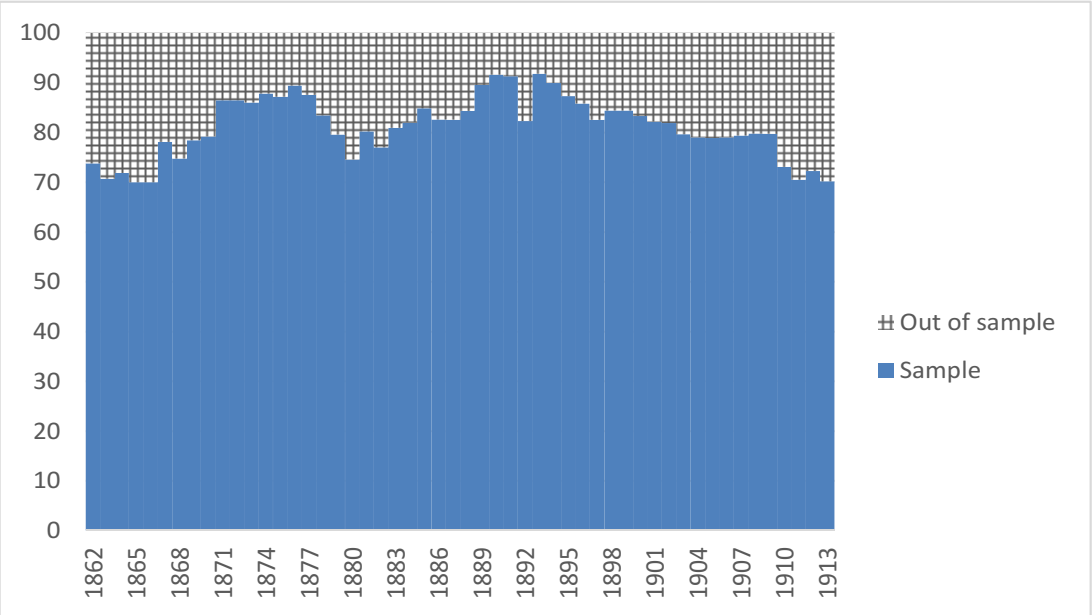
highlighted in the chapter, nor to generalize them outside the Italian experience. Whereas for the former further research is immensely needed to retrieve firm-level data and to unfold the drivers of these spillover effects, for the latter a new strand of literature is emerging, which will allow to put the Italian experience in perspective with the rest of Europe and beyond, shedding new light over these issues. For instance, combining trade data of different countries will allow to test for the existence of “spillovers” from exports/imports of other countries in third markets.

# APPENDIX B

# Appendix: Chapter 2

## B.1

**Figure B.1.1: Share of total Italian exports in the sample**




Source: Author's elaboration on Bankit-FTV and Toniolo (reported in Jorda-Schularick-Taylor Macrohistory Database).

**Table B.1.1: Abbreviations (Countries/Sectors)**

| Countries | | Sectors | |
|---|---|---|---|
| ARG | Argentina | 0 | Food and live animals |
| AUT | Austria-Hungary | 1 | Beverages and tobacco |
| BEL | Belgium | 2 | Crude materials, inedible, except fuels |
| CHE | Switzerland | 3 | Mineral fuels, lubricants and related materials |
| DEU | Germany | 4 | Animal and vegetable oils, fats and waxes |
| FRA | France | 5 | Chemicals and related products, n.e.s. |
| GBR | Great Britain | 6 | Manufactured goods classified chiefly by material |
| NLD | the Netherlands | 7 | Machinery and transport equipment |
| RUS | Russia | 8 | Miscellaneous manufactured articles |
| USA | United States of America | 9 | Commodities and transactions not classified elsewhere in the SITC |

Source: Author's elaboration

**Table B.1.2: Summary statistics for the main variables**

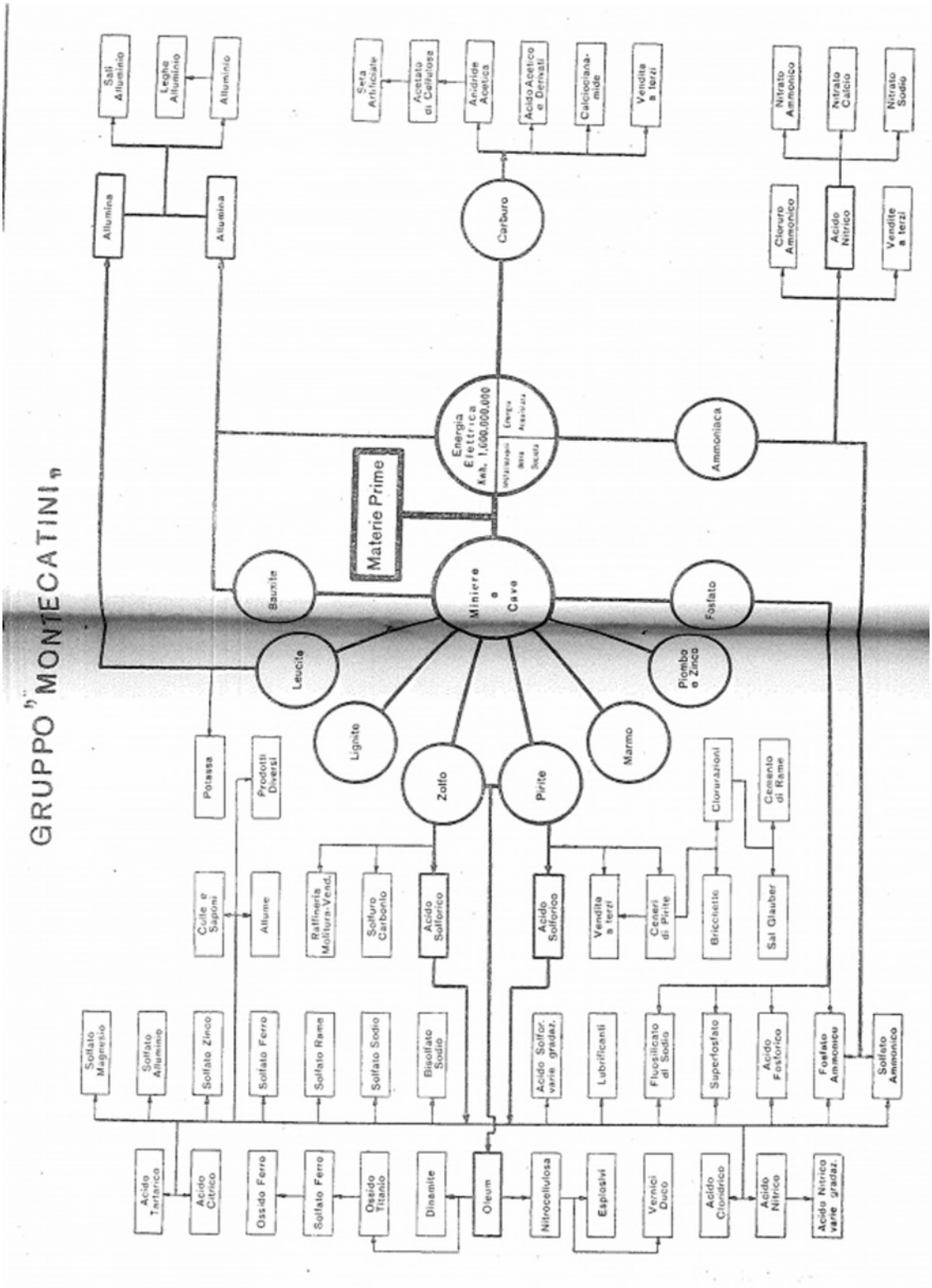
| VARIABLES | Description and sources | N | mean | sd | min | max |
|---|---|---|---|---|---|---|
| Market Entry (ME) | Binary variable that takes the value of either 0 ("no entry") or 1 ("entry"), conditional to "no entry" in t-1<br>$ME_{pjst} = (Entry_{pjs\,t} \mid Entry_{pjs\,t-1} = 0)$<br>*Author's elaboration on Bankit-FTV Database* | 229,320 | 0.06 | 0.23 | 0 | 1 |
| Market Entry and Persistence (MEP) | Binary variable that takes the value of either 0 ("no entry") or 1 ("entry"), regardless of its value in previous time | 229,320 | 0.32 | 0.47 | 0 | 1 |
| lndist | Logarithm of the distance between countries<br>*CEPII GeoDist Database* | 229,320 | 7.47 | 0.87 | 6.54 | 9.32 |
| GS | Dummy variable for dyads, which takes value 1 when both countries are on gold standard (for Italy it is considered the period *de facto*, following Cesarano et al., 2012), and 0 otherwise | 229,320 | 0.38 | 0.49 | 0 | 1 |
| lnGDPGDP | Logarithm of the sum of exporter and importer GDP<br>*Maddison Project Database* | 216,090 | 11.6 | 0.60 | 10.54 | 13.31 |
| ABSdiffGDPpc | Difference between exporter and importer GDP per capita (in absolute terms)<br>*Author's elaboration on Maddison Project Database* | 210,357 | -0.70 | 0.54 | -4.64 | 0.17 |
| DExpAllMark | Growth rate of exports to country j between time t and t-1 (excluding product p)<br>*Author's elaboration on Bankit-FTV Database* | 220,500 | 0.04 | 0.42 | -5.86 | 4.29 |
| LNMarket | Variable indicating the number of markets in which the product is present (time t-1)<br>*Author's elaboration on Bankit-FTV Database* | 224,910 | 3.70 | 2.72 | 0 | 10 |
| DLnproddest | Variable indicating the lagged difference between the total number of products exported to destination j (time t-1)<br>*Author's elaboration on Bankit-FTV Database* | 200,500 | 3.52 | 12.68 | -95 | 52 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Exp_Sect_Spill | Variable which measures the number of products pertaining to the same sector (SITC 3-digit level) exported in country j (time t-1) (see next section for more details) *Author's elaboration on Bankit-FTV Database* | 224,910 | 0.82 | 1.24 | 0 | 6 |
| Exp_Sect_Spill_2 | Exp_Sect_Spill squared (time t-1) (see next section for more details) *Author's elaboration on Bankit-FTV Database* | 224,910 | 2.20 | 5.07 | 0 | 36 |
| Imp_Sect_Spill | Growth rate of imports of product p between time t and t-1 (see next section for more details) *Author's elaboration on Bankit-FTV Database* | 220,500 | 0.14 | 3.36 | -21.47 | 20.77 |

Source: Author's elaboration

## B.2

**Figure B.2.1: Gruppo Montecatini, production structure by sector and product**




Source: Vito (1930)

# ADDENDUM 2

## Addendum to Chapter 2

This addendum provides a short summary of the major qualitative sources and information concerning the firm and business structure in Italy (1862-1913).

The aim of this short addendum is to provide a sense of what firm and industry level structure may have facilitate the diffusion of the "spillover effects" described in the main text. However, the nature and the depth of the information gathered may only be interpreted as anecdotal evidence, but of certain value added.

The idea is to give a general overview of the most relevant cases found in the secondary literature, which include a wide and diverse range of products and firms.

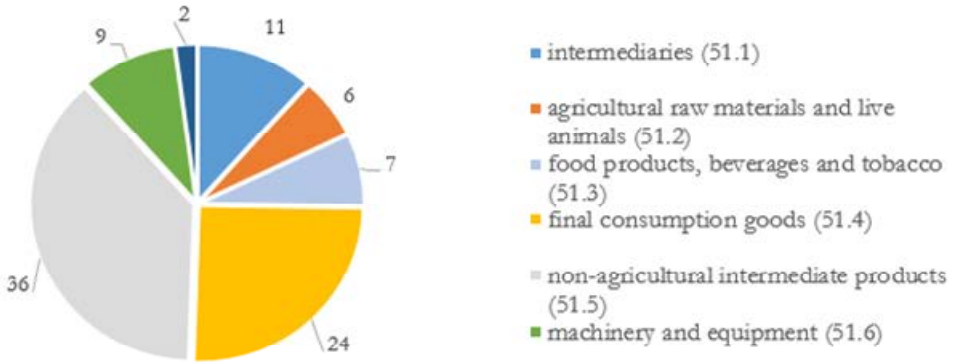
For example, the internationalization process of the Pecorino Romano (a recognised quality of cheese that still exists nowadays) in the United States may be a meaningful example to understand how these forces may have worked. Pecorino Romano was exported for the first time in 1884. Operations were managed by a group of Tuscan enterprises that were previously in trade, prevalently dealing with olive oil, and suddenly decided – due to the increasing demand coming from the destination country partly related to the growing number of Italian immigrants, and exploiting their pre-existent commercial networks (Stanziani, 2010) – to undertake the same operations with cheeses, mainly Pecorino Maremmano, and Pecorino Romano, as a result of the limited production of the former (Olmeo, 2013).

Pecorino was not alone. A considerable number of (products and) firms where involved in wholesale trade as intermediaries. This is testified by the data contained in Imita.db, a database collecting information on Italian joint stock companies' individual balance sheets and boards' members (Giannetti and Vasta, 2006).[58] Indeed, in 1913 there were a total of 90 listed companies in the sector of "trade intermediaries and wholesalers" (division 51 as for Istat code).[59]

Figure ADD.2.1 shows the repartition of this companies at the group level. It emerges a majority of companies operating in wholesale trade for non-agricultural intermediate products (36), final consumption goods (24), and trade intermediaries (11).

[58] For more information about the database, see http://imitadb.unisi.it/.
[59] Some of them were active in more than one subsector, so when performing the analysis at the sub-division level ("group"), I obtain a total of 95 observations.

**Figure ADD.2.1 Italian trade intermediaries and wholesalers' joint stock companies, by sector (number of companies at Istat code "group" level), 1913.**




Source: Author's elaboration on Imita.db

Delving into the information contained in Imita.db, I found some names that are also object of analysis in other secondary sources.

For example, the "Enrico Dell'Acqua" enterprise was specialized in exporting textile products. Based in Lombardy, it began to export to pre-unitary Italian southern states during the pre-unification period, and using the knowledge of such experience, it decided to focus on Spain and North Africa during the 1880s, with adverse results. As a consequence, it (successfully) turned to Latin America countries, and in particular Argentina (Spadoni, 2000).

Another example are the trade intermediaries based in Sicily. The Messina-based English merchants Sanderson and Oates, and the US firms Gardner & Rose and Marston & Co. – just to name a few among the relatively close circle of large merchants – were some of the most important stakeholders. These trade networks relied on trust and personal relations as a manner of risk minimization (Lupo, 1987; Battaglia, 2003; Stanziani, 2010). Within a broader perspective, Roy (2014) acknowledges the presence in Italy since its unification of a set of international trade intermediaries (e.g. Volkart's family business, which established a subsidiary in Italy) promoting the country involvement within the ramifications of the international trade network, with "a high degree of mobility, institutional adaptation, and mainly focused on commodity trading.

Nevertheless, by the end of the 19th century, in some of the areas and sectors of the Italian economy intermediaries were increasingly challenged by entrepreneurs and regarded as "speculators". This hostile environment led to the diffusion of alternative organizational structures, known as "cooperatives": centralised trade institutions that offered to enterprises the facilitation of their export activities and (often) fixed prices on their products, in exchange of some privileges (often the monopoly on the sale management of the enterprises) (Lupo, 1993). Arrangements were comparable to cartels (or consortia, depending on the case) and were active

both in agriculture and industry. Stringher (1905) provides a detailed description of the associations, cooperatives, consortia that had been found in Italy by that time. In many of the cases cited (i.a. "Federazione italiana dei Consorzi agrari"; "Consorzio agrario cooperativo parmense"; "Società fra I mercanti di campagna e gli esercenti industria Agricola e armentizia nell'Agro romano e provincia") their foundational statutes directly include reference to "facilitate" and "participate in" the exporting activities of single business members.[60] Similar cases also existed for foreign owned enterprises (see below).

Italian economic and business history is also rich of cases that show how firms developed along the lines of technology and innovation, foreign capital (including human capital) attraction, and infrastructural improvement, as means of boosting and diversifying bilateral sector exports. Dettori et al. (2001) describe the case of raw cork and corks. Right after the Italian unification, their production flourished in Sardinia, to be almost entirely exported to France and Spain. The sector success promoted progresses in the know-how and technology used. As a consequence, in 1883 the industry expanded to artisanal artefacts made by cork. In Tuscany instead, straw – and particularly straw hats – managed to become the main local manufacture thanks to foreign demand, predominantly from US, where such goods were particular appealing to Italian immigrants. In the 1880s, the stakeholders involved in this business achieved to export 8 million units, growing to 10 million units by 1913 (Belfanti, 1995). In Veneto, wool producers contributed to the expansion of exports. Marzotto, one of the main firm in the area, started exporting at the end of the 1880s. However, it began its internationalization not with finite goods (i.e. textiles), but with industrial filament yarns, and expanded only later to a range of different products (Roverato, 2001). Its main competitor, Lanificio Rossi, based its export strategy on technology, organization, and human capital. It managed to implement an early introduction of steam machines, to decentralise production, to provide access to business and educational trips in foreign countries (mainly Britain), and to recruit foreigners for middle management positions (Felice, 2011; Fontana, 1995).

Finally, multinational corporations and foreign owned companies attracted a lot of research interest, possibly due to a better preservation and access to their archives, and brought Italian business history to focus on the corresponding sectors such as metal (e.g. steel) and chemical industries. Montecatini was by far the main actor in the latter, and its history has been reconstructed in detail by Amatori and Bezza (1990), Zamagni (1990) and Perugini (2014). In particular, Zamagni (1990) provided a detailed overview, describing the sector as *de facto* dominated by a small number of big foreign (multinational) companies, and numerous secondary actors unable to effectively compete for an equal market share, as certified by the

[60] For more details on agricultural associations, cooperatives and consortia, see Coletti (1905).

estimated Herfindahl–Hirschman Index (HHI) for "chemical products" (0,18 – more than moderate concentration) in Giannetti et al. (1996).[61] Multinationals played an important role in the transformation and diversification of the sector, particularly promoting the production of fertilizers and other goods based on pyrite, sulphuric acid and superphosphates, and in rescuing – at least partially – old activities that suffered a protracted crisis, such it happened with the Anglo-Sicilian Sulphur Company, which brought together industrialists and entrepreneurs instituting a monopsonic market structure (for more details see above on intermediaries) (Nicolini, 1989; Lupo, 1993). Such dynamics were also present in the textile industry. For the case of cotton, A'Hearn (1998) provides a magnificent example on how the sector attracted foreign experts. Camis and Lattes (1884) instead provide a useful collection of examples in the mining, quarrying and related sectors. Discussing the beginning of asbestos-based products manufacturing, they acknowledged that it was both the fruit of foreign intellect and that it was an export-oriented production: "The industry in Italy was started by the Marquis of Bavaria, which extracted the mineral in the provinces of Sondrio and Turin, working it in a small factory in Rome […]. Later, that company sold the quarries and factories to the Tursi company, with five million equity, who moved the production to Tivoli, and created recently the "Società anonima per l'escavazione e lavorazione dell'amianto in Italia" (The United asbestos Company), merging with the English company "The Italo-English asbestos Co. limited", based in Turin, and "The patent asbestos manufacture Co.", from Glasgow, the latter limiting its functions to the exports of the raw material to process it in Scotland". [62]

> "In the meantime, arose other companies and private merchants in Turin, Nole, Genoa, Chiavenna, and Milan, dedicating themselves to the complete industry of quarrying and working asbestos, to working only or, finally, to exporting the raw material only."[63]
>
> "the main consumption happens in England, United States, Germany and Belgium, servicing the big steam machines of the navy, the general public

[61] In 1861 the sector provided employment for almost 2900 people (De Carli, 1939, cited in Nicolini, 1989). Approximately 30% were working in companies related to the production of waxes, oils and matches, another 30% in salts and iodine products, 16% in soaps and candles, very active in exporting different product varieties. The rest were distributed among acid minerals, sodas, explosives, colouring agents, glues, paints and amids.

[62] In Italian in the original: "L'industria in Italia venne iniziata dal marchese di Baviera che escavava il minerale nelle provincie di Sondrio e Torino, per lavorarlo in un piccolo opificio a Roma [....].Più tardi questa ditta cedette cave e stabilimenti alla ditta Tursi, che trasporta tutta la fabbricazione a Tivoli, e che ha creato recentemente con capitale di cinque milioni la Società anonima per l'escavazione e lavorazione dell' amianto in Italia (The United asbestos Company) fondendosi colla ditta inglese The Italo-English asbestos Co.: limited, che aveva sede ed opificio a Torino, e coll'altra The patent asbestos manufatcture Co. di Glascow, la quale ultima si limitava all'esportazione del minerale greggio per lavorarlo in Iscozia."

[63] In Italian in the original: "Sorsero nel frattempo a Torino, a Nole, a Genova, Chiavenna e Milano altre società e privati, che si occuparono dell'industria completa dell'escavo e lavorazione dell' amianto, o della semplice lavorazione, od infine del solo commercio di esportazione del minerale greggio".

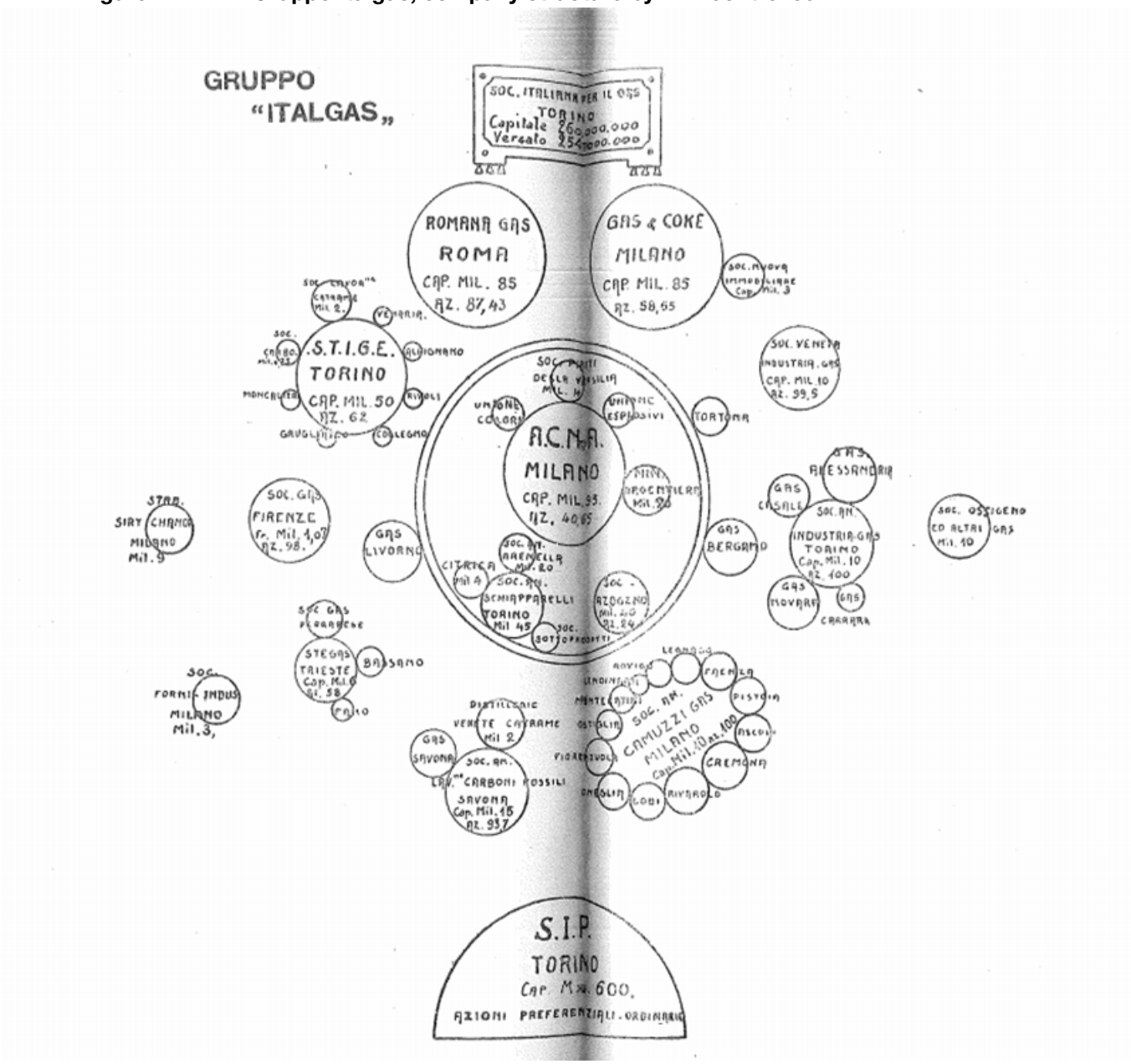
> and locomotive industry, in such a way that *almost the total amount of production is exported*."[64]
>
> (p.58, emphasis added)

The authors describe a similar narrative for the case of raw sulphur, refined sulphur and, more in general, sulphur-related products.

On the same line, Vito (1930) elaborated a study on the diffusion of industrial groups, agreements and cartels, a phenomenon that previously capture the attention of many scholars, such as Flora (1900), Cossa (1900), Pantaleoni (1903), Cassola (1904), Bozzini (1906), and Airoldi (1909). The growing importance in Italy of such business structures is well underlined in the introduction of the book, which describes the expansion – even though limited in size with respect to leading nations such as US and Germany – since the end of the 19th century. Even if it refers to a later period (interwar), the book provides a set of useful illustration – reported below and to be intended as anecdotal evidence – on how the existence and proliferation of multinational companies, industrial groups, etc. may have helped spillovers to develop, due to both the production and company structure. The first mechanism will rely to the production of similar products which will benefit of the same, firm-level, network for exports. The second instead will rely either on a centralised management of different companies, which may impose similar exporting techniques or provide centralised structure for channelling product to foreign countries, or the centralised ownership of an international network of firms, promoting intra-industry trade (Figure ADD.2.2 on Gruppo Italgas, Figure ADD.2.3. on Edison, and Figure ADD.2.4 on A.K.U. refer to a later period, but serve the purpose of exemplification).

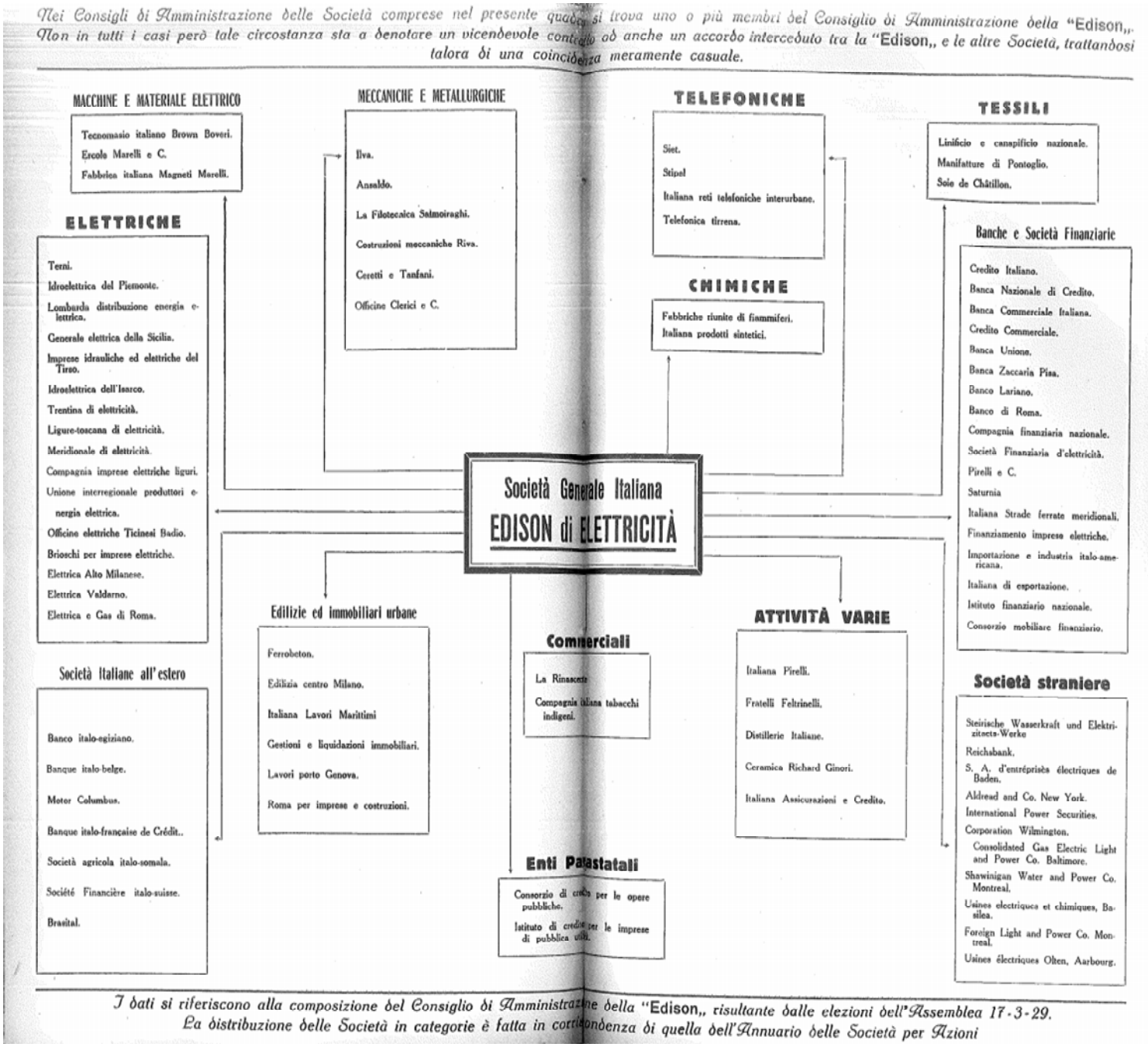
[64] In Italian in the original: "il consumo principale viene fatto in Inghilterra, Stati Uniti, Germania e Belgio, per servizio delle grandi macchine a vapore della marina, dei privati e delle locomotive, in modo che quasi tutta la produzione viene esportata."

**Figure ADD.2.2: Gruppo Italgas, company structure by firm controlled**



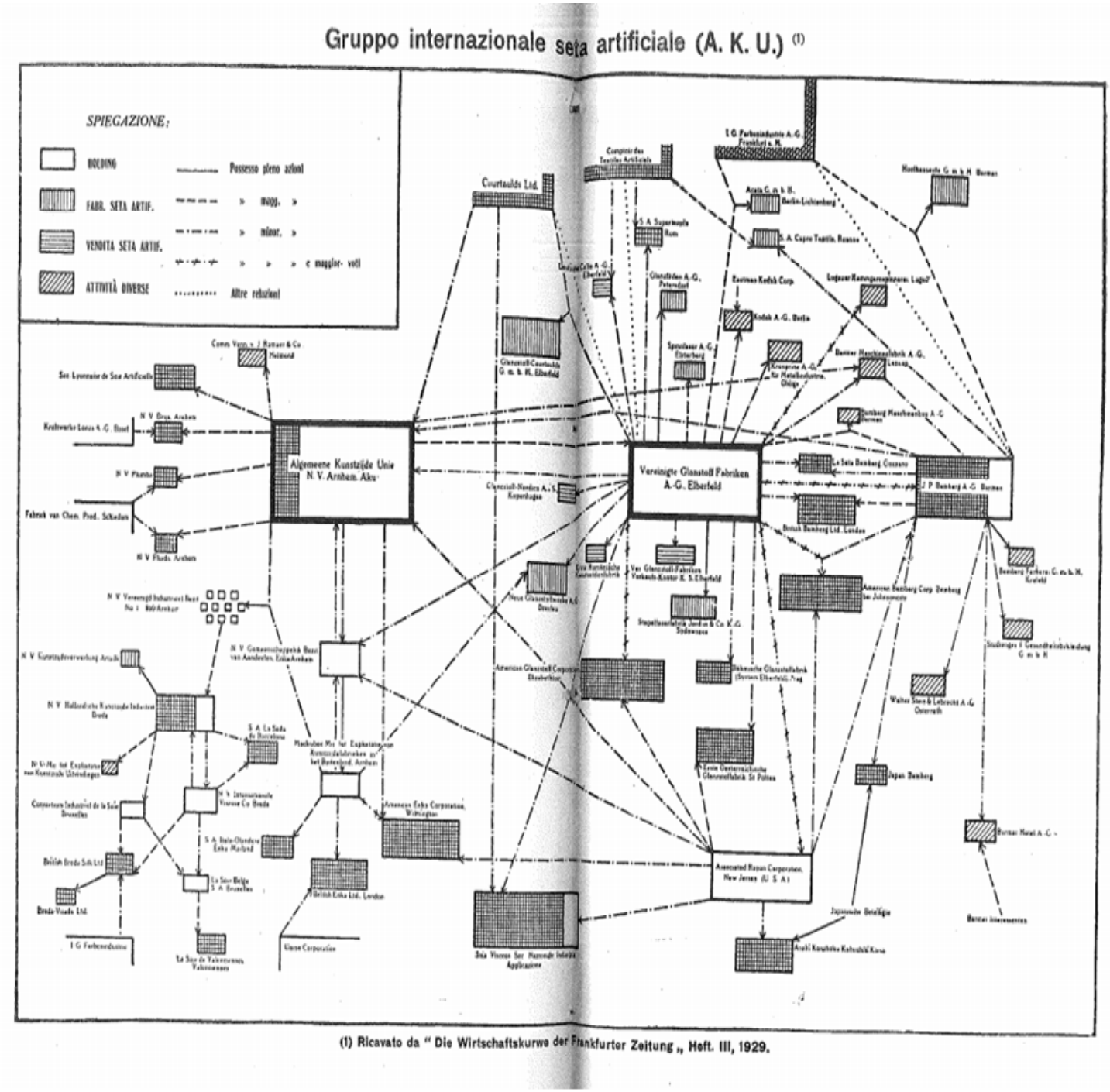

Source: Vito (1930)

**Figure ADD.2.3: Società Generale Italiana Edison di Elettricità,company structure by sector of operation and firm controlled**




Source: Vito (1930)

**Figure ADD.2.4: Gruppo internazionale seta artificiale – A.K.U., company structure by firm controlled and city of operation**




Source: Vito (1930)

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***(Chapter 2)***


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# CHAPTER 3

# Staying dry on Spanish wine: the rejection of the 1905 Spanish-Italian trade agreement

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**Abstract**

On 17 December 1905 the Italian Parliament rejected to ratify the Spanish-Italian trade agreement signed by the Italian government one month earlier, on a diatribe related to the lowering of wine import tariffs. This decision left the two countries without a bilateral treaty for an entire decade. In the literature, broader political issues and local interests are alternatively indicated as the main drivers of treaty rejection. Based on a manually assembled database which collect economic and political variables, including MPs personal features, and using a probit model, this chapter provides a quantitative analysis of the vote. Results show that it is not possible to discard that local interest, proxied by wine production, had a role in the rejection of the bilateral trade agreement.

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## 3.1 Introduction

International trade is firmly embedded in a dense network of multilateral and bilateral agreements whose aim is to promote economic integration beyond national borders. However, this phenomenon is related to a specific historical process and the development of a precise institutional context, which repeatedly overcame very diverse resistances but is not immutable (Newman et al., 2006). Its intertwinement with the political reality has become evident both in policy-making and academia. Indeed, at the 2018 World Economic Forum in Davos, European and other world leaders (e.g. Canada, India, Brazil, etc.) have openly shown their worries for the rising trend in protectionism (ANSA, 2018). Nevertheless, attempts at reverting the international economic integration process (the so-called "economic globalization", see i.a. Benedek, De Feyter and Marrella, 2007) are not new in history. For example, during the first globalization – an episode of increasing economic integration during the 19th century closely related to a extraordinary fall in trade costs, both in terms of trade policy related instruments (i.e. tariffs) and transport (Jacks, Meissner and Novy, 2010) – resistances did not take long to emerge. Indeed, by the end of the 1870s, protectionism was again a la mode: starting with the infamous German "iron and rye" tariff of 1879, the European continent (and beyond) witnessed a trend of increasing trade protection, through the means of unilateral or bilateral actions (Simmons, 2006).

The 1905 rejection of the Spanish-Italian trade agreement by the Italian Parliament is an event that may be an outstanding example of the protectionism rejuvenation during the first globalization. Indeed, in the context of a changing international environment, with the signature of new treaties with Austria-Hungary (1904), Switzerland (1904) and Germany (1904), the Italian authorities felt that, after a rapidly increasing bilateral trade deficit, it was the time to adapt and update the trade treaty with Spain. Therefore, as foreseen in the 1892 modus vivendi (a provisional trade agreement), they denounced the bilateral agreement and opened a six-month window for negotiations. After endless discussions between the delegations, the agreement reached, signed by the Italian government on November 8, 1905 included a drastic cut on tariffs for wine imports. In a heated political and social context, the Parliament voted on it on December 17, 1905. The roll-call vote was split in two: the first vote was, strictly speaking, a confidence vote on the government. The second vote, held during the same session, was set to decide the approval or rejection of the trade treaty. This rare case allows, at least to a certain extent, to separate the two issue and to fully exploit the variation between the two votes. However, so far, the historiography did not treated the issue in detail – with the exception of Garcia Sanz (1993) who reconstructed the Parliamentary debate within the wider perspective of the Spanish-Italian diplomatic relations. Few authors, however, mentioned the failure of the agreement and related it to alternative narratives: on one side Lupo (1998) associates it to the successful lobbying of local

interests, namely those stakeholders associated with wine production, whereas Orsina (2002) and Tomasoni (2011) propend to highlight the wider political framework, such as the interests in opposing or supporting the government and the President of the Council of Ministers Alessandro Fortis. If only broader political factors determined the results of the vote(s), wine production (which I use as a proxy for identifying local interests, i.e. the available data do not allow to disentangle between special and constituency interests) should be orthogonal to the voting patterns.

In addition, this chapter provides the opportunity to analyse an important public policy decision in a period where organized interests, such as trade, business and industry associations, started to actively participate in the policy-making process.

To summarize, in this chapter I exploit a unique database, manually assembled from a variety of primary and secondary sources, to analyse a rare roll-call vote on a failed attempt to ratify an international trade treaty lowering tariffs, and in particular tariffs on wine. I aim to shed some light on the determinants of MPs vote decision. Particularly, the objective is to capture whether Italian MPs responded to local interests, while controlling for other possible elements that may have influenced the vote.

The rest of the chapter is organised as follow: Section 3.2 provides a brief literature review delving into political economy and vote choice determinants, with particular attention to international trade treaties; Section 3.3 describes the historical context in which the rejection of the treaty matured; Section 3.4 illustrates the data sources and the methodology used; Section 3.5 interprets the results; and Section 3.6 concludes.

## 3.2 Literature review

At least since Hobbes' most famous book, "Leviathan", a buoyant part of the literature has developed with the aim of understanding the nature of public institutions, and their role in shaping and connecting economic and political dimensions. Indeed, the vision of the government as a benevolent maximizer of social welfare has been gradually giving way to alternative explanations of government actions (sensu lato can be referred to public institutions as above), where "special interests" – related to both rent-seeking/interest groups models and constituent interest models (Baldwin and Magee, 2000; Malcolm, 2017) – influence the outcome, and the government (as any forms of organization) may experience failures, deviating from possible social optima (see i.a. Grossman and Helpman, 2001; Laffont and Tirole, 1991; Williamson, 1996). Within the political economy literature, four strands of research are particularly relevant for this chapter.

The first deals with “pork-barrell politics” and the allocation of public investment and social spending: political economy incentives would distort public investment from its optimal distribution, towards a mechanism targeting special interest groups (and/or constituents more broadly) as primary beneficiaries. Results of previous elections, members of the Parliament’s (MPs) experience, as well as other personal features, and political parties’ characteristics are among the relevant determinants for the geographical distribution of public investment (see e.g. Golden and Picci, 2008; Maskin and Tirole, 2014; Rodriguez-Pose, Psycharis and Tselios, 2016; Limosani and Navarra, 2001; Fiva and Halse, 2016; Curto-Grau, Herranz-Loncán and Solé-Ollé, 2012; Bugarin and Marciniuk, 2017).

The second strand focuses on the geographical differences in vote patterns, operationalized mainly at the constituency level (e.g. Lampe and Sharp, 2014; Gawande and Krishna, 2003; Fernandez, 2016). Particular attention has been devoted to elections polarised on specific trade issues (see Irwin, 1994; Mayda and Rodrik; 2005; Yu, 2009; Clarke et al., 2017; Lehmann, 2010; Lehmann and Volckart, 2010; to see examples of election results driven by wider economic issues see Gregor, 2015; Hodgson, 2012) or referendums held on trade agreements (Urbatsch, 2013), to extrapolate the economic, political and social determinants of electoral support, to measure the intensity and role of electorate mobilization (new vs. floating voters) and, eventually, the role of special interest groups in influencing election results and, consequently, in shaping the composition of national legislative institutions.

The third strand is related to the understanding of the “do ut des” strategies within the corridors of the Parliaments: log-rolling (or “vote-trading”) is identified as a constraining issue affecting politicians’ choices and, therefore, their votes (Coates and Munger, 1995). Nevertheless, the intrinsic difficulties in properly identifying “log-rolling” limited the number of empirical studies on this subject (Irwin, 1994; Irwin and Kroszner, 1996; Stratmann, 1992; Stratmann, 1995; Esteves and Geisler-Mesevage, 2017).

However, log-rolling is only one of the many causes affecting Parliaments’ voting outcomes: some research (the fourth relevant strand) expands the study of MPs’ vote choices, focusing on other factors, including party affiliation, MPs’ ideology, experience and other personal features, levels of political support, constituent preferences, and special interests considerations (e.g. Hix and Noury, 2016; Russell and Cowley, 2015; Levitt, 1996; Dixit and Londregan, 1996). A consistent part of this literature relates to trade policy (e.g. Malcolm, 2017; Fordham and McKeown, 2003; Weller, 2009; Choi, 2015; Baldwin and Magee, 2000; Tosini and Tower; 1987; Schonhardt-Bailey, 2006; Schonhardt-Bailey, 1991; Erlich, 2007; Erlich, 2009; Xie, 2006; Galantucci, 2013; Willmann, 2003; Conybeare, 1991; Hansen, 1990; Marks, 1993; Nollen and Iglars, 1990; Nollen and Quinn, 1994;

Kamdar and Gonzalez, 1998; Conconi, Facchini and Zanardi, 2014; Kalt, 1988; Boadu and Thompson, 1993; Kang and Greene, 1997; Rodrik, 2018) or "single-issue" politics (e.g. Poelmans et al.; 2018).

In absence of direct industry contribution data (for example to political campaign of single MPs, see e.g. Grossman and Helpman, 1994; Gilbert and Oladi, 2012), it is a hard task to empirically disentangle between constituent-related interest or rent-seeking actions related to special interest group pressures. Therefore, this chapter will focus on understanding whether the members of the Italian Parliament acted following economic interests present in their electoral districts, i.e. what I call "local economic interests", when they tumbled the international trade agreement between Italy and Spain, on the 17th December 1905, rather than disentangling the nature of the incentives generating these behaviours. This will help to shed some light on the historiographical debate. Moreover, it will also help to understand the drivers of an important public policy decision in a period where organized interests, such as trade, business and industry associations, started to actively participate in the policy-making process.

The chapter also adds to the knowledge of these processes in a peripheral country during the first wave of globalization. Indeed, with the exception of Fiorino and Ricciuti (2008), whose analysis focuses on the role of interest group in shaping public spending at the national level (using time series econometrics), and Curto-Grau, Herranz-Loncán and Solé-Ollé (2012), explaining the influence of parliamentary representation on infrastructure spending in Spain, quantitative researchers concentrated – to the best of my knowledge – on the European core (i.e. mainly Britain and France) or on the US. Finally, this chapter also relates to the vast literature analysing the course of Italian tariffs (e.g. Coppa, 1970; Federico and Vasta, 2015; Tena Junguito, 2010a; Tena Junguito, 2010b; James and O' Rourke, 2011; Federico and Tena, 1998; Federico and Tena, 1999).

## 3.3 Historical context

At the beginning of 1905, trade relations between Spain and Italy were governed by a provisional trade agreement – a modus vivendi – signed and ratified in 1892, where Italy undertook to apply to Spain tariffs as determined by its international treaties concluded with Austria-Hungary (1891), Germany (1891), and Switzerland (1892). However, they explicitly agreed that no further reduction in tariffs, eventually stipulated by Italy in a bilateral trade agreement with a third party would have been extended to Spanish imports. So, for example, the reduction in tariffs for wine negotiated in a separate clause with Austria-Hungary (slightly below 6 Italian lire per hectolitre, from the initial level of 20), or in another trade treaty with Greece (1899, down to 12 Italian lire), had no effects for Spanish products. On the

other side, Spain agreed to grant to Italy its conventional tariff, without any further restriction, and all the benefits deriving from the bilateral treaties signed with the Netherlands, Norway, Sweden and Switzerland. The parliamentary debate on the modus vivendi was, as will happen later in 1905, concentrated on wine (Chamber of Deputies, 1892). While acknowledging that it was highly unlikely that Spanish wine would be able to successfully compete with Italian wines in Italy, most of the interventions argued in favour of maintaining prudence. Jannuzzi's speech (a MP elected in Apulia, where wine producers were especially hostile to the treaty) perfectly exemplify the Chamber's feelings:

> "I also pray the government to pay attention, when he will negotiate the trade treaty with Spain, to save us from any far danger related to the competition coming from Spanish wines. It is true that, few days ago, we have widely proven that there is no serious fear of competition in Italy including from the Spanish side, but government prudence requires that, in renewing the treaty, all diligent precautions shall be used"
>
> (Jannuzzi, Chamber of Deputies, 1892)[65]

The government, to avoid "interrupting trade relations" (Chamber of Deputies, 1892)[66] with Spain, followed the precept of excluding wine from the final version of modus vivendi. From 1892, the agreement was extended three times, twice in 1893 and once in 1894 (Chamber of Deputies, 1893, 1894).

However, with an increasingly protectionist international environment, and the new treaties stipulated with, inter alia, Austria-Hungary (1904), Switzerland (1904) and Germany (1904), Italy denounced the modus vivendi in May 1905, opening a six-month window for negotiations. The 1892 labelling of wine as a "very sensible issue" for a trade treaty between Italy and Spain was not considered this time, for conflicting interests between the two countries: the agreement signed by the Government in November of the same year included a cut in wine tariffs of the order of 40%, passing from 20 to 12 liras. However, the tariff still constituted the 60% of the average price of imported products (20 liras).

In December of the same year, the agreement was presented at the Chamber of Deputies in a tense political and social climate. Press of the time widely reported on the agreement. "La Stampa" – one of the main Italian newspapers, published in

[65] Italian in the original: "Rivolgo anch'io la preghiera al Governo, di badare quando negozierà il trattato di commercio con la Spagna, di salvarci da qualsiasi lontano pericolo di concorrenza spagnuola pei vini. È vero che abbiamo, pochi giorni or sono, largamente dimostrato che pei vini non vi ha serio timore di concorrenza in Italia anche per parte della Spagna; ma prudenza di Governo esige che, nel rinnovare il trattato, si usino tutte le diligenti precauzioni."

[66] The sentence was pronounced by Brin, the Italian Ministry of Foreign Affairs at the time, while discussing the approval of *modus vivendi*.

Turin, Piedmont, a region where wine producers were among the most hostile groups to the agreement – dedicated almost an article a day to the issue, since few days after the signature until the Parliamentary discussion (more than one month). For example, on November 26, the newspaper published at the centre of its cover page the article: "Rising tension against the modus vivendi with Spain".[67] In the article, the journalist describes as "sure" the approval of the agreement, providing however prima facie evidence of the rising social tensions, with street protests and the organization of meetings, debates, conventions on the issue by local Chambers of commerce, agricultural and other local associations. Indeed, as thoroughly analyzed in Federico and Martinelli (2018), wine was a big issue in Italy at the turn of the century: it represented 22% of the gross value added of agricultural output, approximately 8% of total GDP, and 11% of total private consumption. The parliamentary debate started on the 11th December in a heated political climate, and lasted 7 days. Wine was undoubtedly the main subject of the debate (see Garcia Sanz, 1993, for more details on the Parliamentary debate). Importantly, it was remarked the difficult situation of the European wine markets, with the discriminatory trade policy implemented by France by the end of the phylloxera plague in the 1890s: France favoured Algerian wine imports over the rest, therefore reducing both imports from Spain and Italy (Meloni and Swinnen, 2018). It was argued that Spanish exporters found their way in third countries (e.g. Austria-Hungary, Switzerland) with important presence of Italian exporters, gaining market share. As a consequence, Italians started to increasingly fear Spanish competition (Pinilla and Ayuda, 2002).

When the long debate came to an end, six days after, the Government was asked to face a confidence vote. As in other institutional frameworks, the Italian Parliamentary rules allowed for the possibility of such vote as a way of requesting the Parliament to critically examine and vote on Government conduct and actions, de facto binding Government survival to the result of the vote. For the objective of this chapter, the most important characteristics of the confidence vote on the government are two: the first, general, consists in the roll call nature of the voting procedure. The second, specific to this vote, is the split of the agenda ("*ordine del giorno*") in two, consequently having two separate votes. The first vote is to be interpreted as a confidence vote sensu stricto, as the Chamber was called to express its opinion on the following sentence: "The Chamber, confirming its confidence in the Government's policy", whereas the second regarded the trade agreement, as "[the Parliament] moves on to the discussion of the article". The government gained the confidence vote with 253 votes in favour and 190 against, whereas it lost the vote on the trade agreement with only 135 votes in favour and a total of 293 votes against.

[67] In Italian in the original: "La crescente agitazione contro il "*modus vivendi*" colla Spagna".

As a consequence, the bill that should have validated the November 18 Royal Decree n.548 on the application of the provisional trade agreement between Italy and Spain was rejected on December 17, 1905. Therefore, since December 18, Spanish products entering the Italian territory were subject to the general tariff and forbidden to use free warehouses. On the other hand, the Spanish Royal Order of December 20 established that Italian products imported in Spain would have been subjected to the general tariff. Additionally, the same Royal Order obliged custom officers to "accurately check" the origin of products (by the mean of analysing the corresponding necessary documents), with particular attention to those exempted from the "justification of origin". The aim was to avoid Italian products to enjoy advantages conceded to other nations "by the means of a trade treaty" (Chamber of Commerce in Milan, 1907). This situation lasted for almost ten years, until 1914, when the two nations reached a new trade agreement,[68] this time excluding wine.

Finally, I should add few words on the Italian electoral system, and on the reason why I expect to see some linkages between the MPs and the respective local interests. Since the approval of the Law n. 210 (5 May 1891), Italy had a single-member constituency system, which traditionally promotes the ties between the MP elected in a constituency and the local (economic) interests, as the election of the former is very likely to be influenced by the electoral choices of the latter (Finelli, 2000; Fruci and Finelli, 2000). In line with most of other countries of the time, the law did not enact universal suffrage, but limited voting rights to males above 21 years of age, with a primary school certificate or a certain level of census instead. This restricted the electorate to approximately 2,5 million people, only 7% of total population (ICSMC, 1946), but almost 30% of male population above 21 years of age (Ministry of Agriculture, Industry and Commerce, 1900), 5 times more the population with the right to vote when the Kingdom of Italy was created in 1861. As in early 20th century wine production in Italy was fragmented across a myriad of small farms (Federico and Martinelli, 2018), the expansion of political rights may have strengthened the influence of local interests, as wine producers may have gained the right to vote, initially even more restricted to the economic elites.

[68] The 1914 agreement was not an insignificant change in the trade relations for the two countries. The Milan Chamber of Commerce Archive contains various letters from different firms (for example, La "Cooperativa Aste Dorate", part of the firm "P.tro Presbitero & Figli", producing frames and other wood products) requesting information on whether or not the 1914 trade agreement had already entered into force (Section III, Box N. 178: "Commercio Estero – A – Trattati e Legislazione – I° – Trattati di commercio – Spagna").

## 3.4 Methodology and Data

### 3.4.1 Empirical strategy

The aim of the study is to capture the influence of alternative indicators of local interests, measured by wine production (or per capita wine production), on voting against the trade agreement or in switching vote between the two votes on the issues discussed in the Parliamentary agenda, i.e. voting in favour of stating the "confidence on the Government", but against the trade agreement approval. In both cases, the dependent variable is a dichotomous ("yea" or "nay") variable. Thus, I follow and adapt Malcolm (2017) and Poelmans et al. (2018), using a probit model to analyse MPs' voting pattern. Operationally, the probit model is specified as follow:

$$NoTrade_i/Switch_i = \beta_0 + \beta_1 Wine_k + \gamma Z'_{ik} + \delta_{geo} + \varepsilon_{ik}$$

where the dependent variable is either "No Trade" or "Switch". In the first case ("No Trade"), I take as a reference group the whole set of MPs present during the voting session, and recorded their votes on the trade agreement (the second vote of the session), independently of the confidence vote (the first vote of the session). "NoTrade" takes the value of one when the MP "i" voted against the trade agreement and zero when he voted in favour or abstained.[69] In the second case, ("Switch") I created a subset, retaining only those MPs that voted "yea" to the confidence vote on government. Indeed, MPs that voted against the government may well have done so for political reasons, and their vote on the trade agreement may be influenced by other political considerations. On the other hand, it can also be the case that MPs from constituencies most affected by the agreement wanted to make sure to manifest their dissenting voting against both issues in the agenda. Therefore, to address potential concerns in using the trade vote only, I use "Switch" to disentangle the effects of switching from being in favour of the government to be against the trade agreement, having as a reference group those MPs that were in favour of both issues.

Wine is the variable of interest. The aim is to represent the MP local interests (due to data limitation is practically impossible to disentangle constituency interests from rent-seeking actions related to special interest group pressures; for the sake of simplicity I use "local interests" only throughout the chapter). I adopt two different measures: total production of wine (expressed in hectolitres) in a province k, or the total production of wine in a province k, divided by the correspondent population (i.e. wine production per capita). As data is only available at the provincial level, I follow Golden and Picci (2008) in "propagating the values of variables available in larger units across the smaller subunits" (p.19). In this case, I propagate provincial

[69] Only two MPs abstained.

values to different constituencies. The main reasons for doing that is to avoid losing variance at a smaller geographical unit in the dependent variable. However, as this is an issue of foremost importance, I also perform a set of robustness tests aggregating the dependent variable at the provincial level, calculating, in the spirit of Curto-Grau et al. (2012), the percentage of MPs that voted against within each province.

$Z'_{ik}$ is a vector of control variables. It includes MPs personal features such as whether or not his principal occupation outside the Parliament was related to agriculture, to control for potential personal economic incentives; a dummy that reflects party affiliation, i.e. whether or not the MP belongs to the same party of the President of the Council of Ministers. If this is the case, it is likely that voting against the government implies higher political costs (even if, in the Kingdom of Italy before WWI, governments received support mostly from across-the-board formed majorities),[70] and his political support within the constituency. I combine the share of actual voters over the total electorate, as the phenomenon of the abstention was widespread (i.e. participation ranged 60%, ICSMC, 1947), and the share of votes the candidate received. The idea is that the lower the margins of victory, the more limited the room for an MP to support controverted issues, because lower is the number of votes the MP may afford to lose to regain next elections. Additionally, I include a proxy for MP ideology, a relevant issue in the literature, and in line with Jackson et al. (1992), Levitt (1996), Burden et al. (2000) and Griffin (2008). To adequately capture "ideology", I use the vote on one of the approved agendas during the discussions for the confidence vote on the government led by Tommaso Tittoni. Tittoni was preceded by Giovanni Giolitti's government, who suddenly resigned, adducing health problems. The government led by Giolitti was expression of a liberal approach to key issues such as social conflict, strike and other workers' rights, etc.. The sessions evolved in a heated parliament debate, with interventions in support and against the creation of the new Tittoni government. However, the final vote was divided in two, the first part on the "pure and simple" support to the government (160 votes in favour, 281 against), and the second on the support to the "liberal ideology" promoted in the "manifesto" of the last general elections.[71] Even if it is not a perfect measure of "ideology", arguably it is the best way to control for it in a context of limited access to MP voting records. Additionally, I also control for the MPs experience in government, coding the number of times MPs have been appointed for any role in the government. Finally, I control for the change in GDP per capita (1881-1901): MPs from regions that grew more during a period of

[70] For further details on this issue, see Banti (1989), Banti (1996), Fruci (2000), Fruci (2002), Lupo (1998).

[71] In Italian in the original: "La Camera affermando che si deve continuare l'indirizzo di politica liberale che costituì il programma delle ultime elezioni generali ed ebbe anche sanzioni dalla maggioranza di questa assemblea passa all'ordine del giorno" (Atti Parlamentari, 24 March 1905, p.1674).

increasing economic integration (despite the widespread raise in trade protectionism) are expected to be the most prone to support trade agreements.

**Table 3.1: Summary statistics for the main variables**

| VARIABLES | Description and sources | N | mean | sd | min | max |
|---|---|---|---|---|---|---|
| Trade_vote | Dummy variable, =1 if $MP_i$ voted "no" to the trade agreement *(Atti Parlamentari, 1905)* | 428 | 0.315 | 0.465 | 0 | 1 |
| Switch_vote | Dummy variable, =1 if $MP_i$ voted "yes" in the (first part of the) confidence vote, but "no" to the trade agreement *(Atti Parlamentari, 1905)* | 240 | 0.454 | 0.499 | 0 | 1 |
| Wine | Wine production within province k, average 1901-1905 *(Istat, 1908)* | 428 | 639084 | 563229 | 25700 | 2522000 |
| Wine_pc | Wine production within province k, average 1901-1905 *(Istat, 1908)* | 428 | 1.195 | 0.941 | 0.02 | 3.93 |
| Prof_Agric | Dummy variable, =1 if $MP_i$ "outside-the-Parliament" profession was related to agriculture *(Italian Parliament official website)* | 428 | 0.063 | 0.243 | 0 | 1 |
| ΔGDPpc | Difference between GDP per capita in 1901 and 1881 *(Felice, 2009)* | 428 | 58.207 | 58.270 | -91 | 158 |
| Gov_Exp | Government experience, number of times $MP_i$ has been appointed for any role in the government *(Italian Parliament official website)* | 428 | 0.549 | 1.516 | 0 | 15 |
| Pol_aff | Political affiliation, dummy variable =1 if $MP_i$ was affiliated to the same party of the President of the Council of Ministers (i.e. Prime Minister) *(Corbetta and Piretti, 2009)* | 428 | 0.683 | 0.466 | 0 | 1 |
| Lib_vote | Ideology, dummy variable =1 if $MP_i$ voted in favour of the confidence to the previous government on March 24, 1905 (i.e. the vote explicitly recalled the "liberal orientation" of the government, see text for more details) *(Atti Parlamentari, 1905)* | 428 | 0.518 | 0.500 | 0 | 1 |
| Part_win | Political support, participation*vote received by the winner *(Corbetta and Piretti, 2009)* | 428 | 42.66 | 9.188 | 21.10 | 80.77 |

Source: Author's elaboration

### 3.4.2 Data

The database has been assembled from a variety of sources. Nominal votes on both the confidence vote on the Italian Government and the 1905 Spanish-Italian trade agreement have been manually retrieved from the Atti Parlamentari (Camera dei Deputati) – Discussioni, a collection of the Italian Parliament's work, including detailed shorthand reports on the Parliamentary debates and votes. Thanks to an impressive effort of the Italian institutions, these documents have recently been digitalized and are available to be consulted online on the historical part of the Italian Parliament official website (storia.camera.it). As the agenda of the voting day was split in two votes, I was able to track both the "confidence vote on the government" and the vote on the trade agreement for every single MP that participated in the voting session. To be noted that MPs were elected in constituencies, i.e. geographical units smaller than provinces and only used for electoral purposes. I also exploit this variation in my identification strategy and robustness tests. Data on wine production at the provincial level have been collected from the Italian Statistics yearbook for the years 1905-1907, edited in 1908 by the Directorate General for Statistics at the Ministry of Agriculture, Industry and Trade. Population data, used to calculate per capita wine production, at the same geographical level are available from the same source but refer to the census year 1901. GDP figures are at the regional level, and are from Felice (2009). MPs political affiliation and electoral support (electoral participation and results), at the constituency level, are from Corbetta and Piretti (2009). MPs personal features, such as their profession, and the responsibilities in the government have been manually collected from the detailed profiles available in the historical section of the Italian Parliament official website (storia.camera.it). Data on other confidence votes used in the main regression (1905 vote on the "support of a liberal government", as a proxy for "Ideology") or in the robustness tests (1906 vote on the second Fortis government) have also been manually retrieved from the relevant volumes of the Atti Parlamentari (Camera dei Deputati) – Discussioni.

## 3.5 Results

This section presents the main results (Table 3.2) and a series of robustness tests (Table 3.3; Table 3.4).

Wine, the variable which serves as a proxy for identifying local interests, is positive and significant across the four different main specifications. Local interests are positively associated not only with voting against the trade agreement in general, but also when I only consider the subset of "switching" MPs that voted in favour of the confidence vote. This means that local interests, identified alternatively by wine production and wine production per capita, influenced both the general stance on trade and the posture of those MPs that supported the government in the first vote.

The MP profession, i.e. whether or not his principal occupation outside the Parliament was related to agriculture (to be intended as a proxy for private interests), seems not to have had a particular role in the decision. However, the non-significance of the coefficient may also be related to the limited number of positive observations the dummy variable has in the database. Additionally, the stronger the economic growth experienced in a specific area (in this case region) previous to the signature of a trade agreement, the lower the probability of an MP of that area to vote against the treaty. This is line with previous findings in the literature, such as Mayda and Rodrik (2005), which found that (for individuals) "relative economic status has very strong positive association with pro-trade attitudes" (p.1394).

Political affiliation and ideology are negatively associated with voting against the trade agreement. MPs pertaining to Fortis' same party, and sharing the "liberal ideology" values (or at least supporting a government which had to respect such "liberal" mandate), where more likely to support the trade agreement. This holds true for government experience.

**Table 3.2: Main results**

| | (1) NoTrade | (2) NoTrade | (3) Switch | (4) Switch |
|---|---|---|---|---|
| Wine | 0.0784*** | | 0.0819** | |
| | (0.0211) | | (0.0326) | |
| Wine_pc | | 0.110*** | | 0.112*** |
| | | (0.0230) | | (0.0337) |
| Prof_Agric | 0.00646** | 0.00533 | 0.00701 | 0.00523 |
| | (0.00327) | (0.00347) | (0.00616) | (0.00619) |
| ΔGDPpc | -0.0724 | -0.110** | -0.219*** | -0.244*** |
| | (0.0548) | (0.0537) | (0.0624) | (0.0587) |
| Gov_Exp | -0.00904 | -0.00708 | -0.0239*** | -0.0220*** |
| | (0.00740) | (0.00718) | (0.00677) | (0.00709) |
| Pol_Aff | -0.168*** | -0.169*** | -0.115 | -0.113 |
| | (0.0497) | (0.0498) | (0.0971) | (0.0991) |
| Lib_Ideology | -0.122*** | -0.126*** | -0.0187 | -0.0271 |
| | (0.0344) | (0.0344) | (0.0621) | (0.0614) |
| Part_win | -0.0857 | -0.0834 | -0.0505 | -0.0474 |
| | (0.0979) | (0.101) | (0.137) | (0.140) |
| N | 428 | 428 | 240 | 240 |

Source: Author's elaboration

Notes: Probit regressions. Coefficients shown are average marginal effects. All regressions include a constant and macro-regional fixed effects (macro-regions are: North-East, North-West, Centre and South + Islands) not reported for the sake of simplicity. Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1.

To test the robustness of the results, I run a set of different specifications of the model, and a set of placebo tests.[72]

In column 1 (Table 3.3), I include the results of the vote on the Fortis II government, happened few months later that the trade vote. The main objective is to control for the political drivers beyond the trade voted: as sometimes argued in the qualitative literature, a relevant issue would have been the objective of tumbling the Fortis' government. In column 2, I use data for 1905 wine production only, instead of the 1901-1905 average. In column 3 I alleviate the hypothesis that those

[72] In Table 3.3, I only include results for "switch" using total wine production. However, results using the other variables specified in any of the four "main" regressions are similar and available upon request.

MPs that were absent from the vote were indifferent from the final results (i.e. in the main regressions, absent MPs are codified as "missing"), and I assume that they were against the vote (absent MPs are codified with a "0"). In column 4, I cluster the standard errors at regional level, to control for any regional factor that may imply heteroscedasticity, even within the "macroregion" (North-east, north-west, centre, south and islands), whose dummies are already included in the regressions. In column 5, 6 and 7 I aggregate the dependent variable at the provincial level, calculating, in the spirit of Curto-Grau et al. (2012), the percentage of MPs that voted against within each province (in the case of "switch", this is still conditional to having voted "yes" to the confidence). Respectively, I estimate the regression using OLS, fractional probit, and tobit, as the range of possible values for the dependent variable is limited between 0 and 1. The main variable of interest, wine production, shows a consistent behaviour throughout the different specifications.

In addition, I run three placebo tests (Table 3.4), using data available at the provincial level for other three agricultural products: wheat, rice and corn (Ministry of Agriculture, 1908). For any of these, I run both the "disseminated" (i.e. constituency level) and the "aggregated" version (i.e. provincial level), using a probit and a fractional probit.[73] Results show that the production of wheat, rice and corn do not explain the MPs vote, no matter the level of aggregation chosen.

[73] I also performed further robustness tests, in line with those of Table 3.3. Results are in line with those displayed in Table 3.4, and are available upon request.

**Table 3.3: Robustness tests**

| | (1) Fortis (ex-post) | (2) Wine1905 | (3) Absent MPs =0 | (4) Cluster s.e. (Region) | (5) OLS | (6) FractProb | (7) Tobit |
|---|---|---|---|---|---|---|---|
| Wine | 0.0826*** | | 0.0691** | 0.0819*** | 0.185*** | 0.0936** | 0.102** |
| | (0.0318) | | (0.0322) | (0.0280) | (0.0797) | (0.0396) | (0.0423) |
| Wine_1905 | | 0.0591* | | | | | |
| | | (0.0312) | | | | | |
| Prof_Agric | 0.00768 | 0.00642 | 0.00446 | 0.00701 | 0.0873 | 0.00618 | 0.00623 |
| | (0.00590) | (0.00621) | (0.00608) | (0.00491) | (0.251) | (0.0186) | (0.0133) |
| ΔGDPpc | -0.217*** | -0.234*** | -0.238*** | -0.219*** | -0.00406** | -0.172*** | -0.227*** |
| | (0.0635) | (0.0642) | (0.0640) | (0.0422) | (0.00162) | (0.0646) | (0.0757) |
| Gov_Exp | -0.0228*** | -0.0239*** | -0.0274*** | -0.0239*** | -0.0173 | -0.0120 | -0.00804 |
| | (0.00699) | (0.00668) | (0.00608) | (0.00681) | (0.0377) | (0.0174) | (0.0235) |
| Pol_Aff | -0.107 | -0.105 | -0.0732 | -0.115 | -0.0520 | -0.0345 | -0.0467 |
| | (0.0947) | (0.0984) | (0.0936) | (0.0825) | (0.196) | (0.164) | (0.194) |
| Lib_Ideology | -0.00478 | -0.0228 | -0.0304 | -0.0187 | 0.0614 | 0.0157 | 0.0470 |
| | (0.0620) | (0.0627) | (0.0619) | (0.0527) | (0.215) | (0.146) | (0.123) |
| Confidence Fortis | -0.0578 | | | | | | |
| | (0.0409) | | | | | | |
| PartWin | -0.0496 | -0.0342 | -0.0690 | -0.0505 | -0.00100 | 0.00378 | -0.0420 |
| | (0.135) | (0.137) | (0.138) | (0.114) | (0.00831) | (0.318) | (0.305) |
| N | 240 | 240 | 253 | 240 | 63 | 63 | 63 |

Source: Author's elaboration

Notes: Probit regressions. Coefficients shown are average marginal effects. All regressions include a constant and macro-regional fixed effects (macro-regions are: North-East, North-West, Centre and South + Islands) not reported for the sake of simplicity. In OLS, wine is expressed in millions of hectolitres. Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1. Results for "Switch", with total wine production. Results of the other three types of regressions do not change and are available upon request.

**Table 3.4: Further robustness – placebo regressions**

| | (1) Probit Wheat | (2) FractProb Wheat | (3) Probit Rice | (4) FractProb Rice | (5) Probit Corn | (6) FractProb Corn |
|---|---|---|---|---|---|---|
| Wheat | 0.009 | -0.021 | | | | |
| | (0.044) | (0.056) | | | | |
| Corn | | | 0.026 | -0.005 | | |
| | | | (0.0337) | (0.046) | | |
| Rice | | | | | 0.0031 | -0.00097 |
| | | | | | (0.008) | (0.007) |
| ProfAgric | 0.007 | 0.005 | 0.006 | 0.005 | 0.006 | 0.0048 |
| | (0.006) | (0.018) | (0.006) | (0.018) | (0.006) | (0.018) |
| ΔGDPpc | -0.266*** | -0.219*** | -0.276*** | -0.213*** | -0.267*** | -0.214*** |
| | (0.066) | (0.073) | (0.064) | (0.064) | (0.063) | (0.067) |
| Gov_Exp | -0.025*** | -0.008 | -0.026*** | -0.0095 | -0.0249*** | -0.010 |
| | (0.006) | (0.159) | (0.006) | (0.017) | (0.007) | (0.019) |
| Pol_Aff | -0.0849 | 0.0077 | -0.068 | 0.064 | -0.083 | 0.071 |
| | (0.096) | (0.159) | (0.097) | (0.169) | (0.096) | (0.158) |
| Lib_Ideology | -0.038 | -0.0663 | -0.039 | -0.050 | -0.0396 | -0.052 |
| | (0.064) | (0.150) | (0.062) | (0.148) | (0.062) | (0.149) |
| PartWin | -0.019 | 0.211 | -0.022 | 0.193 | -0.0096 | 0.187 |
| | (0.137) | (0.346) | (0.134) | (0.335) | (0.135) | (0.335) |
| N | 240 | 63 | 240 | 63 | 240 | 63 |

Source: Author's elaboration

Notes: Probit regressions. Coefficients shown are average marginal effects. All regressions include a constant and macro-regional fixed effects (macro-regions are: North-East, North-West, Centre and South + Islands) not reported for the sake of simplicity. In OLS, wine is expressed in millions of hectolitres. Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1. Results for "Switch", with total wine production. Results of the other three types of regressions do not change and are available upon request.

## 3.6 Conclusions

This chapter revises the determinants of the rejection of the 1905 Spanish-Italian trade agreement perpetrated by the Italian Parliament. Building on the existing literature, I exploit a unique database, manually assembled from a variety of primary and secondary sources, to analyse this rare example of roll-call vote on a failed attempt to ratify an international trade treaty lowering tariffs, and in particular tariffs on wine, in a peripheral country during the first wave of globalization. Aiming at shedding some light on the determinants of MPs vote decision for an agreement that did not received much attention, but it has been alternatively depicted in the literature as the by-product of either the successful lobbying of local interests or wider political interests, such as the interests in opposing or supporting the government and the President of the Council of Ministers Alessandro Fortis. I show the importance of local interests to explain Italian MPs voting behaviours, while controlling for other possible elements that may have influenced the vote.

I follow and adapt Malcolm (2017) and Poelmans et al. (2018), using a probit model to analyse MPs' voting pattern. Proxying local interest with wine production, it is not possible to discard that local interest played a role in the rejection of the trade agreement, as they are positively associated not only with voting against the trade agreement in general, but also with "switching" from voting in favour to the confidence to voting against the trade agreement. This means that local interests, identified alternatively by wine production and wine production per capita, influenced both the general stance on trade and the posture of those MPs that supported the government in the first vote.

This chapter contributes to clarify the debate on the drivers of the rejection of the 1905 Spanish-Italian trade agreement perpetrated by the Italian Parliament, pointing at the relevant role of local interest, and providing – for the first time – a quantitative analysis on the issue. Careful of not expanding the conclusions beyond the historical context and the geographical scope of this chapter, the chapter highlights that in a period where the protectionist rhetoric was largely successful and states where implementing polices to watered down the progress achieved in the process of globalization, local interests proved to be able – at least – to influence the institutional plans for promoting further economic integration, with long-lasting consequences. Further research is deeply needed, including the collection of product-level tariff data from primary sources, to provide a wider cross-country perspective, and the study of qualitative sources to fully understand the dynamics of lobbying activities and lobbyists, and the "sensitivity of Italian decision makers to their efforts" (Federico and Tena, 1999).

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***(Chapter 3)***


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# CONCLUSIONS

This thesis analysed the monetary integration and the political economy of international trade during the first wave of globalization.

In Chapter 1, I revise the conventional view that the LMU had no overall effects on international trade, confirming the findings of Flandreau's (2000) pioneering work – being the first paper using cliometric techniques on such issues. In addition, however, I allow for heterogeneous effects on trade relations between France and the rest of the LMU members on one side, and among the rest of LMU members on the other side, characterising different periods of "LMU effectiveness" based on historical circumstances and evidence, and using an augmented gravity model which also take into account political powers. Within such framework, I have shown that the LMU was relevant for trade flows under certain conditions. Indeed, if analysing the entire period under consideration (1865-1913), estimates show an insignificant effect on overall within-LMU trade, a result that mirrors its institutional weaknesses. Nevertheless, when considering factors related to the changing conditions in the international environment affecting the LMU underlying economic foundations (i.e. the limits on silver coinage agreed upon in 1874) and the rules of the Union (i.e. the "liquidation clause" of 1885), the data support the hypothesis that the LMU had significant trade effects for the period 1865-1874. These effects were nonetheless concentrated in the flows between France and the rest of LMU members. Moreover, structural break analysis confirmed that only in 1874 (and not in 1885) there was a "LMU-wide" structural break, which affected the course of trade flows within the Union. These new findings are in line with primary sources obtained from archival research, and previous qualitative evidence available in the literature.

In Chapter 2, I revise the evolution of Italian exports since the Unification until WWI, with a particular focus on market entry. Building on the existing literature and exploiting the recently released Bankit-FTV database, I first construct the intensive and extensive margins for Italian exports during the period 1862-1913 and, second, show the existence of "spillover" effects influencing the probability of Italian exports to enter a foreign market. Those effects are linked to the Italian export and import dynamics. The quantitative analysis, based on a logit model, shows robust support for what it has been referred to, throughout this chapter, as "export spillovers" and "import spillovers". In the first case, this means that the presence of "similar" exported products increases the probability of entry in the destination market, due to either the creation of a superior sector-specific knowledge, accumulated by the same or a similar firm selling similar products when firms with similar or complementary products decide to export as a consequence of the behaviour of their peers, or other mechanisms that should be unfolded using firm-level data. In

addition, I detect an inverted-U relationship between the presence of similar exports in a specific market and the probability of entry in a market. This would prove the existence of a threshold, above which the market reaches a "saturation"/"congestion" level, possibly due to increasing competition among Italian products in the foreign country. In the second case, "import spillovers" also affect positively the likelihood of product entry in a market: the greater the increase in the imports of a product k at time t-1, the more likely the product was to be exported at time t. This positive effects may not only be "indirect" through productivity or technology, but "direct" through a reduction in production costs. However, if imported products were not used as inputs in the domestic production process, but competed with domestic products in the market instead, the effects of increased imports on exports may act through a different channel: the firm (product) strive for survival may oblige domestic (and less competitive) firms (products) to find compatible foreign markets, characterised by lower productivity. Finally, import competition may have positive effects through an indirect channel, stimulating productivity and innovation as in a model à la Aghion et al. (2005), where firms decide to face the increase in foreign competition investing more in innovation, increasing productivity and overcoming fixed costs related to export activities, therefore opening a wider set of markets, which were previously unaffordable.

In Chapter 3, I revise the determinants of the rejection of the 1905 Spanish-Italian trade agreement perpetrated by the Italian Parliament. Building on the existing literature, I exploit a unique database, manually assembled from a variety of primary and secondary sources, to analyse this rare example of roll-call vote on a failed attempt to ratify an international trade treaty lowering tariffs, and in particular tariffs on wine, in a peripheral country during the first wave of globalization. Aiming at shedding some light on the determinants of MPs vote decision for an agreement that did not received much attention, but it has been alternatively depicted in the literature as the by-product of either the successful lobbying of local interests or wider political interests, such as the interests in opposing or supporting the government and the President of the Council of Ministers Alessandro Fortis. I show the importance of local interests to explain Italian MPs voting behaviours, while controlling for other possible elements that may have influenced the vote. I follow and adapt Malcolm (2017) and Poelmans et al. (2018), using a probit model to analyse MPs' voting pattern. Proxying local interest with wine production, it is not possible to discard that local interest played a role in the rejection of the trade agreement, as they are positively associated not only with voting against the trade agreement in general, but also with "switching" from voting in favour to the confidence to voting against the trade agreement. This means that local interests, identified alternatively by wine production and wine production per capita, influenced both the general stance on trade and the posture of those MPs that supported the government in the first vote.

However, inevitably, this research faced certain limitations. Throughout the pages of this thesis, I focused on the effects of a monetary agreement on trade, on the course of Italian exports and the determinants of market entry, and on the political economy beyond the rejection of an international trade treaty using the methods of quantitative analysis. All these, I argue, are fundamental questions to be addressed. Nevertheless, to answer these enquiries, I left open others, which may be judged equally useful in contributing to a better understanding of the European economic history. In particular, while the trade effects of a monetary agreement, described in Chapter 1, are certainly important, the mechanisms beyond the formation of international agreements, including the diplomatic negotiations are also interesting to be understood. How the LMU got to have (or have not) its governing institutions and rules? Had special interests of any sorts a role in shaping the final outcome? Which special interests supported or opposed the LMU during its existence? What was the LMU public perception? In addition, to combine the Italian exporting and importing experience, described in Chapter 2, with a detailed qualitative analysis of firm-level data would allow to relax some hypothesis and gauge with more precision the channels beyond export and import spillovers, shedding new light over these issues. Finally, Chapter 3 provides a quantitative analysis of the political economy beyond the rejection of the 1905 Spanish-Italian trade agreement. Nevertheless, as argued by Federico and Tena (1999), “we still know very little about the lobbying, and the sensitivity of Italian decision-makers to their efforts”. Therefore, more archival research to understand these issues is still deeply needed.

# References

***(Introduction and Conclusions)***


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